# SUPREME COURT OF THE UNITED STATES

## OCTOBER TERM, 1936

# No. 21

ESSEX RAZOR BLADE CORPORATION,
PETITIONER,

*vs.*

GILLETTE SAFETY RAZOR COMPANY

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE THIRD CIRCUIT

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JUDD & DETWEILER (INC.), PRINTERS, WASHINGTON, D. C., AUGUST 18, 1936.
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IN THE

# District Court of the United States,

FOR THE DISTRICT OF NEW JERSEY.

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No. E-4813. IN EQUITY.

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LETTERS PATENT No. 1,633,739.

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GILLETTE SAFETY RAZOR COMPANY

*v.*

ESSEX RAZOR BLADE CORPORATION.

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## DOCKET ENTRIES.

| | |
|---|---|
| Feb. 13, 1934. | Bill of Complaint filed. |
| Feb. 13, 1934. | Subpœna issued. |
| Feb. 16, 1934. | Subpœna returned served Feb. 14th and filed. |
| Feb. 23, 1934. | Answer filed. |
| Apr. 23, 1934. | Amendment to Answer and Order thereon filed. |
| Oct. 25, 1934. | Trial. Argument set for Oct. 29. (Clark.) |
| Nov. 8, 1934. | Order allowing Opinion of Court on Final Hearing to stand as Findings of Fact and Conclusions of Law, filed. |
| Nov. 8, 1934. | Final Decree for Defendant for Costs filed. |
| Feb. 6, 1935. | Assignments of Error filed. |

| | |
|---|---|
| Feb. 6, 1935. | Petition for Appeal and Order Allowing Appeal filed. |
| Feb. 6, 1935. | Bond on Appeal filed. |
| Feb. 6, 1935. | Citation issued. |
| Feb. 9, 1935. | Citation returned, service acknowledged February 7, Copy filed. |
| Mar. 5, 1935. | Stipulation and Order Extending Term filed. |
| Apr. 8, 1935. | Order extending time, &c. filed. (Copy filed.) |
| May 2, 1935. | Order extending time, &c. filed. (Copy filed.) |
| May 28, 1935. | Motion and Notice of Motion for Appeal filed. |
| June 4, 1935. | Order extending time, &c. filed. (Copy filed.) |
| June 10, 1935. | Hearing on Motion for Appeal. Order signed. (Clark.) |
| June 10, 1935. | Order on Appeal filed. |

## BILL OF COMPLAINT.

(Filed February 13, 1933.)

IN THE DISTRICT COURT OF THE UNITED STATES, FOR THE DISTRICT OF NEW JERSEY.

No. . IN EQUITY.

ON LETTERS PATENT No. 1,633,739.

*Gillette Safety Razor Company,*
Plaintiff,

v.

*Essex Razor Blade Corporation,*
Defendant.

*To the Honorable the Judges of the United States District Court, for the District of New Jersey:*

The plaintiff, Gillette Safety Razor Company, for its bill of complaint, alleges:

1. That the plaintiff, Gillette Safety Razor Company, is a corporation duly organized and existing under and by virtue of the laws of the State of Delaware, having its principal office and place of business in the City of Boston, County of Suffolk and Commonwealth of Massachusetts; upon information and belief, that the defendant, Essex Razor Blade Corporation, is a corporation duly organized and existing under and by virtue of the laws of the State of New Jersey, and is a citizen and resident of said state, having a regular and established place of business at Elizabeth, within the District of New Jersey, and has committed acts of infringement of the patent hereinafter set forth, within said district and elsewhere.

2. That this is a suit in equity arising under the patent laws of the United States, for infringement of the following letters patent:

| Inventor | Patent No. | Issued | Application Filed |
|---|---|---|---|
| Henry J. Gaisman | 1,633,739 | June 28, 1927 | November 21, 1922 |

3. Upon information and belief, that prior to the filing date of his application for said patent, Henry J. Gaisman was the first, original and sole inventor of the inventions covered by said patent, which inventions were not known or used by others in this country, before his invention or discovery thereof, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, or more than two years prior to his application for letters patent therefor, and not in public use or on sale in this country for more than two years prior to his application aforesaid, and which has not been abandoned, nor patented nor caused to be patented by himself or his legal representatives or assigns in any foreign country upon an application filed more than twelve months prior to said filing date; and that on said date he duly filed application in the United States Patent Office for letters patent for said invention; and that, on June 28, 1927, after due proceedings had, and after compliance with all the requirements of law in such cases made and provided and then in force, Letters Patent No. 1,633,739 were duly issued to him upon said application, profert of said letters patent, or a duly certified copy thereof, being hereby made.

4. That subsequent to the date of issue to the said Henry J. Gaisman of said Letters Patent No. 1,633,739, dated June 28, 1927, and prior to the infringements herein complained of, the said Henry J. Gaisman duly assigned the said letters patent to Autostrop Safety

Razor Company, Inc., a corporation organized and existing under the laws of the State of New York, and that subsequent to the aforesaid assignments to it, and prior to the infringements herein complained of, the said Autostrop Safety Razor Company, Inc., duly assigned the said letters patent to the plaintiff, Gillette Safety Razor Company; and that the plaintiff was at the time of the infringement herein complained of and is at present vested with the entire right, title and interest in and to said letters patent and/or all rights and privileges granted and secured thereby and therefore plaintiff is entitled to sue for injunctive relief against any infringement thereof and to recover any and all damages and/or profits for any and all infringements of said letters patent as will more fully appear from the original or certified copies of said assignments in court to be produced and prayed to be taken as part hereof.

5. That the inventions patented as aforesaid are of great commercial value and have gone into extended use, and large numbers of devices embodying the said inventions have been manufactured and sold since the date of issuance of said letters patent, and the public has acquiesced in general in the validity of the said letters patent and has recognized plaintiff's rights thereunder.

6. Upon information and belief, that the defendant, Essex Razor Blade Corporation, has infringed the said letters patent, since their issuance and within six years prior to the filing of this bill of complaint, and without the license or consent of the plaintiff, by the manufacture and/or sale and/or use of safety razor blades embodying the inventions covered thereby within the District of New Jersey and elsewhere in the United States; that the public has been notified that

articles made under said letters patent were patented either by fixing thereon the word "Patent" or the word "Patented," together with the number of said letters patent, and/or by affixing to the package wherein one or more of them is enclosed, a label containing the like notice; that the defendant has been duly notified of said letters patent and of its infringement thereof, but that notwithstanding such notice the defendant still continues and/or threatens to continue to infringe in defiance of plaintiff's rights in the premises and to the great and irreparable injury of the plaintiff, not only by reason of the loss of gains and profits which it otherwise would have received, but also because the defiance complained of is so conspicuous that it will have the effect of inducing others to infringe the said letters patent.

7. Upon information and belief, that the defendant has derived and is deriving profits from said infringing acts, and that the plaintiff has been damaged thereby; and that the extent of such profits is unknown to the plaintiff.

WHEREFORE, the plaintiff prays:

(1) That the defendant may be compelled by a decree of this honorable Court to account for and pay to the plaintiff all profits received by it from the aforesaid infringement, and all damages suffered by the plaintiff as a result of such unlawful acts, and that said damages be trebled; and

(2) That a permanent injunction, and a preliminary injunction pending this suit, may be issued enjoining and restraining the defendant, its officers, associates, agents, attorneys, servants, workmen, employees, and each of them, from infringing or contributing to the infringement of the said letters patent or any of the claims thereof; and

(3) That the defendant be decreed to deliver up to this Court, or to the plaintiff, for destruction, all articles in its possession which infringe the said letters patent or any of the claims thereof; and

(4) That, by a preliminary order of this Court, all safety razor blades, which infringe the said letters patent or any of the claims thereof, owned by, or found in the possession of, the defendant, be impounded in the custody of the United States Marshal, pending the further decree of this Court; and

(5) That the defendant be decreed to pay the costs and disbursements of this suit; and

(6) That the Court grant such other and further relief as in equity shall be just.

GILLETTE SAFETY RAZOR COMPANY,

By STAFFORD JOHNSON,
*Treasurer.*

PITNEY, HARDIN & SKINNER,
*Solicitor for Plaintiff,*
Office and Postoffice Address:
744 Broad St., Newark, N. J.
CHARLES NEAVE,
HENRY R. ASHTON,
*Of Counsel.*

COUNTY OF SUFFOLK,
COMMONWEALTH OF MASSACHUSETTS, } *ss.:*

STAFFORD JOHNSON being duly sworn, deposes and says: I am the treasurer of the Gillette Safety Razor Company, the plaintiff named in the foregoing bill of complaint; I have read the foregoing bill of complaint and know the contents thereof; and that the same is true of my own knowledge, except as to the matters therein stated to be alleged upon information and belief, and as to those matters I believe it to be true.

STAFFORD JOHNSON.

Subscribed and sworn to before me this seventh day of February, 1934.

HERBERT W. HENWAY,
(Seal) *Notary Public.*

---

## ANSWER.

(Filed February 23, 1934.)

---

The defendant, Essex Razor Blade Corporation answering the bill of complaint herein alleges:

1. Defendant admits the allegation as to its incorporation, existence and place of business and corporate existence and place of business of the plaintiff as alleged in paragraph numbered 1 of the bill of complaint, but denies each and every of the other allegations contained therein.

2. Defendant, for answer to the allegation contained in paragraph numbered 2 of the bill of complaint, admits that this is a suit in equity brought under the patent laws of the United States for alleged infringement of the letters patent enumerated therein.

3. Defendant admits that on June 28, 1927, Letters Patent of the United States 1,633,739 was issued to one Henry J. Gaisman, but it denies each and every of the other allegations contained in paragraph numbered 3 of the bill of complaint.

4. Defendant is without knowledge as to the allegations contained in paragraph numbered 4 of the bill of complaint and therefore denies each and every of them.

5. Defendant denies each and every of the allegations contained in paragraph numbered 5 of the bill of complaint.

6. Defendant denies each and every of the allegations contained in paragraph numbered 6 of the bill of complaint.

7. Defendant is without knowledge as to the allegations contained in paragraph numbered 7 of the bill of complaint and therefore denies the same.

Without waiving any of the foregoing defenses but further replying to said bill of complaint:

8. Defendant avers that said United States Letters Patent in Suit No. 1,633,739 is invalid and void for the reason that the alleged invention thereof attempted to be patented therein, and every material and substantial part thereof, had long prior to the alleged invention or discovery thereof, by said Henry J. Gaisman, or more than two years prior to the filing of application for said letters patent of the United States, been patented, described and contained in Letters Patent of the United States and foreign countries, numbered and dated as follows:

UNITED STATES LETTERS PATENT.

| *Inventor* | *Patent No.* | *Patent Date* |
|---|---|---|
| Gillette | 775,134 | Nov. 15, 1904 |
| Gillette | 775,135 | Nov. 15, 1904 |
| Brosius | 810,709 | Jan. 23, 1906 |
| McCann | 842,000 | Jan. 22, 1907 |
| Warner | 842,928 | Feb. 5, 1907 |
| Bullard | 851,341 | Apr. 23, 1908 |
| Goe | 858,649 | July 2, 1907 |
| Reed et al. | 868,697 | Oct. 22, 1907 |
| King | 875,274 | Dec. 31, 1907 |
| Kastor | 888,019 | Mar. 19, 1908 |
| Reed | 896,153 | Aug. 18, 1908 |
| Tabb | 902,625 | Nov. 3, 1908 |
| Crichton-Clark | 906,488 | Dec. 8, 1908 |
| Reed | 923,579 | June 1, 1909 |
| Clark | 933,020 | Aug. 31, 1909 |
| Levalley | 949,584 | Feb. 15, 1910 |
| Waterman | 951,036 | Mar. 1, 1910 |
| Nahemow | 952,837 | Mar. 29, 1910 |
| Clark | 967,500 | Aug. 16, 1910 |
| Conrow | 967,501 | Aug. 16, 1910 |
| Clark | 972,436 | Oct. 11, 1910 |
| Smith | 978,230 | Dec. 13, 1910 |
| Buchner | 983,202 | Jan. 31, 1911 |
| Ragsdale | 987,743 | Mar. 28, 1911 |
| Alvarez | 991,594 | May 9, 1911 |
| Carreras | 1,000,235 | Aug. 8, 1911 |
| Gaisman | 1,011,938 | Dec. 19, 1911 |
| Hetlyn | 1,028,461 | June 4, 1912 |
| McCain | 1,103,904 | July 14, 1914 |
| Lawson | 1,116,448 | Nov. 10, 1914 |
| Howard | 1,125,328 | Jan. 19, 1915 |
| Ashwell | 1,180,963 | Apr. 25, 1916 |
| Wrede | 1,203,089 | Oct. 31, 1916 |
| Lutz | 1,221,065 | Apr. 3, 1917 |

| *Inventor* | *Patent No.* | *Patent Date* |
|---|---|---|
| Tela | 1,238,069 | Aug. 21, 1917 |
| Ballreich | 1,246,219 | Nov. 13, 1917 |
| McCain | 1,262,073 | Apr. 9, 1918 |
| Leslie | 1,272,816 | July 16, 1918 |
| Benn | 1,308,730 | July 1, 1919 |
| Nordskog | 1,342,028 | June 1, 1920 |
| Leahy | 1,370,133 | Mar. 1, 1921 |
| Aitken | 1,411,552 | Apr. 4, 1922 |
| Peterson | 1,431,680 | Oct. 10, 1922 |
| Lamb | 1,436,451 | Nov. 21, 1922 |

FRENCH LETTERS PATENT.

| | | |
|---|---|---|
| Rubel | 402,096 | Sept. 25, 1909 |
| Zalduondo | 431,191 Delivré | Sept. 4, 1911 |

BRITISH LETTERS PATENT.

| | | |
|---|---|---|
| Blau | 170,806 Accepted | Nov. 3, 1921 |
| Taylor | 178,186 " | Apr. 7, 1922 |

SWISS LETTERS PATENT.

| | | |
|---|---|---|
| Kaufman | 47,827 | July 10, 1909 |
| Atlas Manufacture | 74,969 | Oct. 1, 1917 |

DANISH LETTERS PATENT.

| | | |
|---|---|---|
| Hessebo | 21,997 | June 8, 1916 |

9. Defendant further avers in view of the statements, admissions and allegations of said Henry J. Gaisman enumerated in the proceedings in the Patent Office and so contained in the application of said Letters Patent in Suit No. 1,633,739, the matters and things claimed therein do not identify any invention or improvements patentably distinguishable from the prior art.

10. The defendant further avers that Letters Patent of the United States in Suit No. 1,633,739 is invalid

and void for the reason that the alleged invention thereof, and all material and substantial parts thereof, was invented by, known to and/or in public use and/or on sale in the United States by the following named persons and corporations, at the following named places prior to the alleged invention, by the said Henry J. Gaisman, or more than two years prior to the filing of application for Letters Patent of the United States in Suit No. 1,633,739 to wit:

Gillette Safety Razor Company, of and at Boston, Massachusetts, assignee of Letters Patent of the United States No. 1,431,680, granted on October 10, 1922, on the invention of Niel B. Peterson for Hardening of Thin Steel Sheets.

Arthur B. Lamb of and at Cambridge, Massachusetts, patentee of Letters Patent of the United States, No. 1,436,451, granted on November 21, 1922, for Safety Razors.

11. Defendant avers that the descriptive portions of the specification of said letters patent to Henry J. Gaisman in Suit No. 1,633,739 are vague, indefinite, ambiguous and contradictory in their terms; that the alleged invention disclosed therein is inoperative and devoid of utility; that the claims of said patent are vague, indefinite, ambiguous and broader than the alleged invention, and, therefore, said letters patent is void and of no legal effect; and further that, when said claims are and shall truly, be correctly, and lawfully construed by reference to the application of said letters patent in suit and the art existing and prior to the alleged invention of the subject matter of said claims, the latter and each of them will be legally susceptible only to such interpretation and meaning and scope that no act ever done or intended to be done by the defendant herein can be justly or lawfully held to

involve infringement of said Letters Patent in Suit No. 1,633,739 or any of the claims thereof.

12. Defendant avers, on information and belief, that Letters Patent of the United States in Suit No. 1,633,739, does not describe the purported invention thereof as required by law in such full, clear and exact terms as to enable any persons skilled in the art or science to which it appertains or with which it is most nearly connected, to make, employ, or use the same, and does not point out and distinctly claim the parts or improvements claimed as the patentee's alleged invention.

13. Defendant avers that the aforesaid letters patent to Henry J. Gaisman No. 1,633,739 was issued by the United States Patent Office without due investigation in that as shown by the records and contents of the file wrapper of said letters patent in Suit No. 1,633,-739 a copy of which is ready here in court to be produced, an important part of the relevant prior art herein set forth was overlooked and other parts of said prior art were improperly applied and construed; wherefore the Commissioner of Patents exceeded his legal authority in granting said Letters Patent No. 1,633,739 and the latter is therefore void and of no legal effect.

14. Defendant avers on information and belief that in view of the knowledge and practice of the art and prior to the date of filing of application for Letters Patent of the United States in Suit No. 1,633,739, it required no invention whatsoever, but only the ordinary skill of the art to which the said alleged invention of Letters Patent of the United States in Suit No. 1,633,739 appertains, and that said letters patent is consequently invalid and void for lack of patentable novelty and defendant avers that said Letters Patent of the

United States in Suit No. 1,633,739 does not embody or disclose any patentable variation or change from what was common knowledge in the art.

15. Defendant avers, on information and belief, that by reason of the proceedings taken in the United States Patent Office in the prosecution of the application for Letters Patent of the United States in Suit No. 1,633,739, the patentee thereof, his legal representatives or assigns, is estopped from maintaining the same in such scope as to cover or embrace any article which the defendant may have used or sold or which it is now using or selling.

16. The defendant further avers, that said Henry J. Gaisman was not the original, first and true inventor of the alleged invention purported to be covered by the said Letters Patent of the United States No. 1,633,739, or of any material or substantial part thereof, but that the same was disclosed, prior to the alleged invention thereof by the said Henry J. Gaisman, in printed publication, and, among others, in the specifications and drawings of said letters patent recited in paragraph numbered 8 hereof, as well as in other printed publications, to which defendant prays leave to refer hereafter by amendment or otherwise when it shall have ascertained the same.

17. Defendant further avers that it has been diligent in ascertaining and setting forth herein instances of prior knowledge, invention, public use, publication and patenting of the alleged invention of Letters Patent of the United States in suit No. 1,633,739, yet believing many further instances to exist, it prays leave to add the same by amendment or otherwise when ascertained.

18. Defendant further avers that said letters patent to Henry J. Gaisman No. 1,633,739 formed the

subject matter of a separate and independent suit in the case of the Gillette Safety Razor Company v. Hawley Hardware Company (64 Federal Reporter 2d Series) decided by the Circuit Court of Appeals, Second Circuit April 3, 1933, the Court holding that the claims of said Letters Patent No. 1,633,739, do not infringe flexible wafer type razor blades having an elongated central opening and re-entrant cut out corners.

19. Defendant further avers that a petition for a writ of certiorari to the United States District Court of Appeals for the Second Circuit in the aforementioned case of Gillette Safety Razor Company v. Hawley Hardware Company, (64 F. 2d 6, 9), was denied by the United States Supreme Court, Oct. 9, 1933 (54 S. Ct. 71).

WHEREFORE, defendant denies that the plaintiff is entitled to the relief prayed for in the bill of complaint or to any part thereof or to any relief against it and it prays that the bill of complaint be dismissed for want of equity with costs against the plaintiff.

ESSEX RAZOR BLADE CORPORATION
By JOHN J. DONOVAN,
*President.*

SAUL LEHR,
*Solicitor for Defendant.*
Office and Postoffice Address:
80 Broad Street,
Elizabeth, N. J.
CHARLES M. PALMER,
*Of Counsel.*

CITY OF WASHINGTON,
DISTRICT OF COLUMBIA, } *ss.:*

JOHN J. DONOVAN, being duly sworn, deposes and says that he is the president of the Essex Razor Blade Corporation, the corporation named in the matter of the above-identified case; that he has read the answer subscribed by him in the within entitled action and knows the contents thereof and that the same is true of his own knowledge, except as to the matters therein stated as to be alleged upon information and belief and as to those matters he believes them to be true.

JOHN J. DONOVAN.

Sworn and subscribed to before me this twenty-sixth day of February, 1934.

GENEVIEVE C. CALVERT,
(Seal) *Notary Public.*
My commission expires April 10, 1934.

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## AMENDMENT TO ANSWER.

(Filed April 23, 1934.)

---

Now comes the defendant, Essex Razor Blade Corporation, and asks leave to amend its answer herein as follows:

Strike out paragraph 8 and insert in lieu thereof the following:

8. The defendant avers on information and belief that the claims of said United States Letters Patent in suit No. 1,633,739 set up in the bill of complaint are void and invalid because all material and essential features and parts described and claimed in said letters patent were, previous to the alleged invention or discovery by said Henry J. Gaisman, known and used by others in this country; and more than two years prior to the date of filing of the application for said letters patent and public use or on

sale in this country; and patented, described and set forth in the following cited patents and printed publications and hence could not have been patented by said Henry J. Gaisman in accordance with the provisions of the statutes of the United States, the prior patents and printed publications relied on and which render the claims of said letters patent to Henry J. Gaisman invalid and void and which clearly teach and anticipate the subject matter of said letters patent in so far as they have been ascertained are:

UNITED STATES PATENTS

| *Number* | *Patent Date* | *Inventor* |
|---|---|---|
| 775,134 | Nov. 15, 1904 | Gillette |
| 906,488 | Dec. 8, 1908 | Crichton-Clarke |
| 933,020 | Aug. 31, 1909 | Clark |
| 952,837 | March 22, 1910 | Nahemow |
| 1,000,235 | Aug. 8, 1911 | Carreras |
| 1,011,938 | Dec. 19, 1911 | Gaisman |
| 1,116,448 | Nov. 10, 1914 | Lawson |
| 1,124,668 | Jan. 12, 1915 | Shure |
| 1,169,665 | Jan. 25, 1916 | Marx |
| 1,246,219 | Nov. 13, 1917 | Ballreich |
| 1,247,266 | Nov. 20, 1917 | Hartman |
| 1,308,730 | July 1, 1919 | Benn |
| 1,367,665 | Feb. 8, 1921 | Kowitz |
| 1,389,962 | Sept. 6, 1921 | Merz |
| 1,573,244 | Feb. 16, 1926 | Hickey |

C. M. PALMER,
*Counsel for Defendant.*

The foregoing amendment is consented to:

HENRY R. ASHTON,
*Counsel for Plaintiff.*

So ordered this twenty-third day of April, 1934.

FORMAN,
*United States District Judge.*

Filed this twenty-third day of April, 1934.

## ORDER AS TO FINDINGS OF FACT AND CONCLUSIONS OF LAW.

(Filed November 8, 1934.)

The Court having rendered an opinion herein on October 29, 1934, it is therefore

ORDERED that the opinion of this Court, on final hearing, rendered October 29, 1934, stand as the findings of fact and conclusions of law and be deemed to constitute the formal decision herein as required by Equity Rule 70½.

WILLIAM CLARK,
*United States District Judge.*

Dated November 8, 1934.

Approved as to form.

MERRELL E. CLARK,
*Counsel for Plaintiff.*
C. M. PALMER,
*Counsel for Defendant.*

Copy received, November 5, 1934.
MERRELL E. CLARK,
*Counsel for Plaintiff.*

## FINAL DECREE.

(Filed November 8, 1934.)

This cause came on to be heard at the October term of the court upon final hearing on pleadings and proofs and was argued by counsel; and thereupon upon consideration thereof it is

ORDERED, ADJUDGED and DECREED as follows:

1. That claims 1 and 2 of Letters Patent of the United States No. 1,633,739 issued June 28, 1927 to H. J. Gaisman, assignor to plaintiff, for improvements in safety razors, are invalid in law.

2. That the bill of complaint be and the same hereby is dismissed with costs to defendant to be taxed by the clerk and defendant have judgment and execution thereof.

Dated November 8, 1934.

WILLIAM CLARK,
*United States District Judge.*

---

Approved as to form.
MERRELL E. CLARK,
*Counsel for Plaintiff.*
C. M. PALMER,
*Counsel for Defendant.*

---

Please take notice that on Monday, the seventh day of November, 1934, at 2 P. M., or as soon as counsel can be heard, I shall present the within final decree to Hon. William Clark, United States District Judge, at his chambers on the eighteenth floor at the Lefcourt Building, Newark, N. J.

Yours, etc.,
C. M. PALMER,
*Counsel for the Defendant.*
Office and Postoffice Address,
270 Broadway,
New York City, N. Y.

---

Copy received, November 5, 1934.

MERRELL E. CLARK,
*Counsel for Plaintiff.*

## PETITION FOR APPEAL AND ORDER ALLOWING APPEAL.

(Filed February 6, 1935.)

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Plaintiff herein, Gillette Safety Razor Company, considering itself aggrieved by the final decree entered in this case on November 8, 1934, adjudging that the bill of complaint herein be dismissed, does hereby appeal to the United States Circuit Court of Appeals for the Third Circuit for the reasons specified in the assignments of error filed herewith, and prays that this appeal may be allowed and a citation may be issued, directed to the above-named defendant, Essex Razor Blade Corporation, commanding it to appear before the said United States Circuit Court of Appeals to do and receive what may appertain to justice to be done in the premises, and that a transcript duly authenticated with so much of the records, proceedings, and exhibits herein as appertain to the subject-matter of the appeal, be transmitted with this appeal to the said United States Circuit Court of Appeals.

GILLETTE SAFETY RAZOR COMPANY

By HENRY R. ASHTON,
*Its Counsel.*

---

The foregoing appeal is allowed as prayed for and the Clerk of this Court is directed to issue a citation to the said defendant and to certify the record accordingly.

GUY L. FAKE,
*United States District Judge.*

February 6, 1935.

## ASSIGNMENTS OF ERROR.

(Filed February 6, 1935.)

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Now comes the above-named plaintiff, Gillette Safety Razor Company, by its counsel, and presents with its accompanying petition for appeal from the final decree, entered herein on the eighth day of November, 1934, the following assignments of error:

1. That the Court erred in dismissing the bill of complaint with costs to the defendant.

2. That the Court erred in not granting the plaintiff the relief prayed for in the bill of complaint.

3. That the Court erred in holding that claims 1 and 2 of Gaisman United States Letters Patent No. 1,633,739 are invalid.

4. That the Court erred in not holding that claims 1 and 2 of the said Gaisman United States Letters Patent No. 1,633,739 are valid and infringed by the defendant.

HENRY R. ASHTON,
*Counsel for Plaintiff.*

February 6, 1935.

## CITATION.

(Filed February 14, 1935.)

*By the Honorable, One of the Judges of the District Court of the United States for the District of New Jersey in the Third Circuit.*

To:

Essex Razor Blade Corporation,

GREETING:

YOU ARE HEREBY CITED AND ADMONISHED to be and appear before the United States Circuit Court of Appeals, for the Third Circuit, on the eighth day of March, 1935, pursuant to an appeal, duly obtained, from a decree of the District Court of the United States for the District of New Jersey, wherein Gillette Safety Razor Company is plaintiff-appellant and you are defendant-appellee, to show cause, if any there be, why the said decree should not be corrected and speedy justice should not be done in that behalf.

WITNESS the Honorable GUY L. FAKE, District Judge for the District of New Jersey, this sixth day of February, in the year of our (Seal) Lord, One Thousand Nine Hundred and Thirty-five and of the Independence of the United States, the One Hundred and Fifty-ninth.

GUY L. FAKE,
*United States District Judge.*

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Service of the within citation is hereby accepted on behalf of the defendant, Essex Razor Blade Corporation.

C. M. PALMER,
*Counsel for Defendant-Appellee.*
February 7, 1935.

## ORDER EXTENDING RETURN DAY OF CITATION, ETC., TO JUNE 7, 1935.

(Filed May 3, 1935.)

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This cause came on to be heard at this term, upon motion of Henry R. Ashton, Esquire, counsel for plaintiff-appellant, and upon consideration thereof, it is hereby ORDERED:

That the return day of the citation herein, the time for filing and approving the præcipe, the time for lodging and approving the narrative statement of the evidence, and the time for filing the transcript of record and docketing the appeal herein in the United States Circuit Court of Appeals is hereby extended for thirty (30) days to and including the seventh day of June, 1935, and the term of this court is correspondingly extended for the consideration of any matters which may arise herein.

FORMAN,
*United States District Judge.*

May 1, 1935.

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Consented to:

C. M. PALMER,
*Counsel for Defendant-Appellee.*

## STATEMENT OF EVIDENCE.

IN THE DISTRICT COURT OF THE UNITED STATES, FOR THE DISTRICT OF NEW JERSEY.

EQUITY No. 4813.

*Gillette Safety Razor Company,*
Plaintiff,

v.

*Essex Razor Blade Corporation,*
Defendant.

Appearances: PITNEY, HARDIN & SKINNER, by CHARLES HARDIN, ESQ.;
MERRELL E. CLARK, ESQ., for the plaintiff;
C. M. PALMER, ESQ., SAUL LEHR, ESQ., for the defendant.

Tried before Hon. William Clark, J., at the Lefcourt Building, Newark, New Jersey, on Thursday, October 25, 1934, at 10:30 A. M.

MR. CLARK: May it please your Honor, this is a patent suit of the usual kind. The plaintiff is the Gillette Safety Razor Company; the defendant is the Essex Razor Blade Company of Newark.

The defendant was organized in 1933. Its president up until that time had been for many years an employee of Gillette Safety Razor Company.

THE COURT: What is his name?

MR. CLARK: Mr. Donovan. And the vice-president and treasurer, Mr. Harlow——

THE COURT: Didn't I have a motion in this case?

MR. PALMER: Yes, there was a motion with regard to the extension of time for the time of trial.

MR. CLARK: The vice-president and treasurer, Mr. Harlow, was also for a number of years, prior to the formation of the defendant company, an employee of the Gillette Company.

The patent in suit relates to a safety razor and to blades for use in safety razors. Some of the claims of the patent are directed to the razor itself. The two claims here in suit, which are claims 1 and 2, are directed to the blade. So that the charge here is a charge of direct infringement and not——

THE COURT: Is infringement denied?

MR. PALMER: Yes.

THE COURT: Infringement is denied?

MR. PALMER: Yes. We also have a defense of no invention, devoid of invention.

THE COURT: No validity. Is it a fact that your people are former employees?

MR. PALMER: Yes, we admit that—well, that is with regard to Mr. Harlow and Mr. Donovan, but the other members of the concern, as far as I know, are not.

MR. CLARK: Referring very briefly to the patent, if I may explain to your Honor——

THE COURT: Well, counsel, just give me the blades, will you, and I will compare them.

MR. CLARK: I beg your pardon, the blades?

THE COURT: It is only on the blades, is that true?

MR. CLARK: Yes.

THE COURT: These are the blades, are they?

MR. CLARK: That is an example of one of the blades, that is the defendant's blade.

THE COURT: I asked you for the plaintiff's.

MR. CLARK: I beg your pardon.

THE COURT: All right. This dark blade is plaintiff's?

MR. CLARK: Yes, your Honor.

THE COURT: Have it marked.

(Plaintiff's blade is marked Exhibit P-1.)

(Defendant's blade is marked Exhibit D-1.)

THE COURT: Now, what are the claims?

MR. CLARK: Claims 1 and 2.

THE COURT: Couched in that extraordinary language that you patent attorneys affect.

MR. CLARK: I thought that the meaning of the claim would be apparent.

THE COURT: Imagine saying "substantially centrally disposed." What language!

MR. CLARK: It seems to be the jargon of the soliciting profession.

THE COURT: Very harmful, of course, as a matter of fact. All right. Now, what is the defense? I think I will let them present the defense.

MR. CLARK: Yes, very well.

THE COURT: Because I think that will clarify it.

MR. PALMER: Your Honor, the defenses relied on are as follows——

THE COURT: Don't tell me what they are. One of them is non-invention. Now, what are your anticipating patents?

MR. PALMER: Of course, no infringement.

THE COURT: Take up invalidity first. What are your anticipating patents?

MR. PALMER: Our anticipating patents are several.

THE COURT: Have them introduced and marked.

MR. PALMER: To show the state of the art, we cite the old Gillette patent, the original pioneer patent, 775,134. To show further state of the art we rely on patent——

THE COURT: Just give me your anticipating patents. Have you them in book form?

MR. PALMER: I have them in book form.

THE COURT: Introduce them in evidence. Are they all pleaded?

MR. PALMER: Yes. I offer this binder of patents as defendant's exhibit.

(Received and marked Exhibit D-2.)

THE COURT: Now let me see the patents.

MR. PALMER: Your Honor please, we have a further defense.

THE COURT: What is that?

MR. PALMER: That is intimidation on the part of Gillette interfering with the business carried on so far as sales are concerned.

THE COURT: I never heard of such a defense in a patent suit.

MR. PALMER: Well, there is a restraint of business on the part of Gillette.

THE COURT: That is no defense in a patent suit.

MR. PALMER: Well, it has some sort of effect.

THE COURT: Is it a defense?

MR. PALMER: It is not a primary defense.

THE COURT: Is it any defense?

MR. PALMER: It might show the intent.

THE COURT: Is it any defense legally?

MR. PALMER: Legally, I should say no.

THE COURT Then please don't waste my time mentioning it. Now, which is your nearest patent, in your opinion?

MR. PALMER: The Hartman patent.

THE COURT: What's that in the book? Have you got them in any particular order?

MR. PALMER: They are in numerical order.

THE COURT: Well, what is that?

MR. PALMER: 1,247,266.

THE COURT: All right, I have it. That is for a blade, is it?

MR. PALMER: According to Fig. 4.

THE COURT: Where is your razor? Let me have your razor.

MR. PALMER: We have no razor. Defendant simply manufactures blades.

THE COURT: I didn't ask you for your razor. All right.

Now, what, please, Mr. Clark, is the invention in any of it? What is the touch of genius that makes this blade different from any other blades with holes in the middle of it?

MR. CLARK: Prior to this invention in these Gillette type razors the blade falling into the razor was not positioned by separate means on the——

THE COURT: Don't use language like that, please—"positioned." What language that is! Use plain English.

MR. CLARK: May I put it this way, your Honor, that in the previous razors the two members, the guard and the cap, were put together and held in the desired position by these three prongs that went through and the blade was placed in between there, if your Honor would not mind looking at this drawing which I am handing you.

THE COURT: No, not a bit.

MR. CLARK: That will indicate what I mean. The proportions are slightly exaggerated so it will make it clear.

Fig. 1 is a section which shows the pin down through the positioning stud, down through the hole in the guard which is the bottom member, and through the hole in the blade. That positioning stud you will note is——

THE COURT: Stud is this little screw thing?

MR. CLARK: Yes. It is the part of the—well, there are three of them in this old type razor; there are two at the ends which are not screw threaded in addition to the one in the middle that is screw threaded, and there are no co-operating means, nothing between the guard, the bottom member, and the blade to retain the blade in any particular position with reference to the guard. The result is——

THE COURT: Read that again, please.

(The reporter thereupon read the last statement of counsel.)

THE COURT: That doesn't make good sense.

(The reporter thereupon reread the same statement of counsel.)

THE COURT: You use a curious word there, "co-operating means." What do you mean by that?

MR. CLARK: They act together. Perhaps it would help if I handed your Honor one of these old type razors. There your Honor will note that on the cap, that is the top member, there are three things that project through holes in the guard and those three things serve two purposes, first——

THE COURT: Where is the blade for this razor?

MR. CLARK: That same blade will go into the old Gillette. The blade was just a three-hole affair. These blades have been made so that they will go in that razor.

THE COURT: I see. All right.

MR. CLARK: The sole means for positioning both the guard and the blade were those three prongs that stuck through the holes and if you will look at this drawing for just a moment you will see with reference to Fig. 1 for example that the parts are positioned in——

THE COURT: Well, does your invention consist in having on the bottom part—is this what you called the guard? What do you call this?

MR. CLARK: This part of it, that is the guard, your Honor.

THE COURT: Having on the lower part of the guard two little diamond-shaped protuberances.

MR. CLARK: It consists in having means of that character there which will register the guard with reference to the blade and then other means on the blade such as those corner notches shown in that model that you have before you, in which rest little lugs on the corners of the cap which properly relate the cap and the blade.

THE COURT: Wait a minute. Now, let me try that. Well, in other words, on your lower part of your

guard you have two little diamond-shaped protuberances and on the top you have at each corner four little protuberances, is that right? Both of which fit into the blade, is that correct?

MR. CLARK: That is correct. So that the blade acts in the nature of a key.

THE COURT: Makes this fit more snugly, that's all it amounts to.

MR. CLARK: It enables a closer fit with reference to the shaving edge.

THE COURT: All right. Now, that is the invention, is it? I should think that wasn't very well described in the patent.

MR. CLARK: Well, I think the specification makes that rather clear, I think, in the patent.

THE COURT: Well, I should think your patent really was not for a blade—wait a minute——

MR. CLARK: The first paragraph of the specification describes this prior Gillette type razor and then it goes on to explain the advance made by this invention.

THE COURT: Shouldn't your patent be then for a combination?

MR. CLARK: It is both, your Honor; the first two claims are for the blade.

THE COURT: Yes, but you apparently aren't suing on the third.

MR. CLARK: And the others are for the combination. We are not suing upon the combination claims because this defendant makes only the blades. Therefore, we have limited the suit to the blade claims which are the first and second.

THE COURT: Now, what is Hartman?

MR. CLARK: That is the old plan of having protuberances on but one of the members, which protuberances locate both the blade and the other member. As far as I know, there is absolutely nothing——

THE COURT: On one of the members, what do you mean by that?

MR. CLARK: Well, have you the Hartman patent before you?

THE COURT: Yes, I have.

MR. CLARK: You will see in Fig. 3, for example, you see the lugs, the things out at the end G′ that fit into the recesses in the blade, which is shown in Fig. 4, and also in recesses in the other member.

THE COURT: Yes.

MR. CLARK: It is the same old thing, that this has had for its background.

THE COURT: Well, are there protuberances on either—in the Hartman patent?

MR. CLARK: They are all on one.

THE COURT: On which?

MR. CLARK: On the top member in Fig. 3, I think you call it the guard.

THE COURT: Where are they?

MR. CLARK: At G′ in Fig. 3 and the prongs that project down.

THE COURT: Well, then, your invention is not as you said it is for protuberances on the lower part, is it?

MR. CLARK: The invention, if I might say it, your Honor, is this, that this inventor for the first time utilized the blade as the key for keeping all three members——

THE COURT: What did Hartman do?

MR. CLARK: —in proper relation to each other.

THE COURT: I thought you said there were protuberances in Hartman.

MR. CLARK: Yes, but they were all on the one member.

THE COURT: Didn't they fit into the blade in some way?

MR. CLARK: They fitted into the blade and also into the other member. The difference here is that the blade is the key to the thing, the blade positions the cap with reference to——

THE COURT: I don't see that.

MR. CLARK: May I refer to this drawing which I showed you a moment ago to explain just what that is?

THE COURT: Yes.

MR. CLARK: In Fig. 1 of that drawing you have the old type razor.

THE COURT: Where is Hartman, have you got that drawing?

MR. CLARK: I haven't a drawing of Hartman, perhaps the defendant has.

MR. PALMER: I have no drawing of it.

THE COURT: Then how are we to understand it?

MR. PALMER: Well, it is very obvious.

THE COURT: It is not obvious to me.

MR. PALMER: That the Hartman blade was a key in the same sense that the Gillette blade is the key for their razor, I might further point out that it is a common interlocking member of common length, that by reason of the depending stud, B′, depending from the cap, and also by reason of the members G extend-

ing upwardly from the guard of the razor and those upstanding members are receivable in side recesses, shown in Fig. 4, and——

THE COURT: Of course, that is jargon you are talking to me now.

MR. PALMER: Well, I am just pointing out——

THE COURT: You are not pointing it out, you haven't bothered to make any drawing.

MR. PALMER: Well, we thought that that function there was very obvious.

THE COURT: As it happens to be the crux of the case, I should think you could fairly well have elaborated it.

MR. PALMER: Well, I have an expert here.

THE COURT: I cannot tell from reading those claims whether there are any projections or not or what they are, and the drawing is unintelligibly obscure. I will see if I can get it out of the specifications.

What are the springs referred to?

MR. CLARK: May I ask where, your Honor?

THE COURT: The springs, that is $G^2$.

MR. CLARK: Where are they?

THE COURT: What are they?

MR. CLARK: G?

THE COURT: G, it says.

MR. CLARK: G and G'. They are shown in Fig. 3. They are the means that project from the guard and pass through these notches in the blade and corresponding notches in the other member, the cap in Hartman.

THE COURT: What are they, what do you mean by springs?

MR. CLARK: Well, they seem to be made of spring material. You can see them in Fig. 3 of Hartman.

THE COURT: That is just what I cannot see. I was looking at them but I cannot see them.

MR. CLARK: May I point them out to you?

THE COURT: Where are they supposed to be, on the bottom member of the guard or what?

MR. CLARK: On the Hartman?

THE COURT: Yes.

MR. CLARK: They are on the bottom member in Hartman and they pass through notches in the blade and in the top member.

THE COURT: Then they are just a good deal like yours, aren't they?

MR. CLARK: No.

THE COURT: Why not?

MR. CLARK: The difference is, if your Honor please, ours don't pass through both the blade and the other member.

THE COURT: But they do—what—oh!

MR. CLARK: They have nothing to do with the positioning, if I may use that word, between the two members, the cap and the guard.

THE COURT: Well, is that the difference then?

MR. CLARK: Yes; in the Gaisman, the patent in suit, the blade is the thing which is the key to the positioning.

THE COURT: What difference does it make—if you extended your little diamond-shaped protuberances that are on the bottom, if you extended them through the top, wouldn't you be the same as Hartman or wouldn't you?

MR. CLARK: No, your Honor.

THE COURT: Why not?

MR. CLARK: Because the blade in the Gaisman device has means which hold it in a certain fixed——

THE COURT: What sort, what means?

MR. CLARK: Well, you are speaking now of those diamond-shaped members?

THE COURT: Yes.

MR. CLARK: That is the one means that is like Hartman, but Hartman instead of having other means between the blade and the other member, namely, the cap for holding the——

THE COURT: Well, now, then it comes back to what I said before, then your invention is those four little protuberances on the cap. Are those the other means?

MR. CLARK: Those are the other means.

THE COURT: And that is your invention then?

MR. CLARK: Well, I wouldn't like to say categorically that is the invention.

THE COURT: That is what you claim.

MR. CLARK: Because a combination of the blade which for the first time in the art, your Honor, has served as the thing——

THE COURT: Well, why? In the Hartman case the blade must have served as the thing.

MR. CLARK: May I just refer to this drawing for a moment? I think I can make myself a little more clear as to the difference. I recognize the difficulty that your Honor has because I had a similar difficulty when the matter was first presented. I think this drawing will make it a little clearer, if I may refer to that.

THE COURT: I think this drawing is pretty useless, if you ask me.

MR. CLARK: It was helpful to me. I thought it might be to you.

THE COURT: I could have drawn a better one myself.

MR. CLARK: Well, the difference is, as I have said, that this inventor is the first one——

THE COURT: Who put these protuberances on the top of his guard, is that right?

MR. CLARK: No, who used the blade.

THE COURT: But you keep saying that, counsel, he uses it only in a certain way.

MR. CLARK: Yes.

THE COURT: Now, is the way that he has got those protuberances on his top which fit into——

MR. CLARK: He has protuberances on the top.

THE COURT: —which fit into little niches in the blade?

MR. CLARK: Yes, in addition to protuberances on the bottom.

THE COURT: Which admittedly Hartman has done?

MR. CLARK: That alone has been done, although that has not been done where those protuberances on the guard, as you call them, did not also position the cap.

THE COURT: Well, I don't think—there is certainly nothing to that. All right. Then your invention consists in putting four little protuberances on the top of each corner of the top and fitting them into corresponding niches in the blade?

MR. CLARK: To the extent that that makes possible this blade positioning to which I have referred.

THE COURT: But that's the way it is done?

MR. CLARK: That's the way it is done. It is the first time that has been done.

THE COURT: In other words, it is the first time there had ever been any little protuberances on the top although there had been protuberances on the bottom for a long time, correct?

MR. CLARK: If your Honor wishes to put it that way.

THE COURT: Isn't that accurate? I only wish to put it in accordance with the fact.

MR. CLARK: I mean that is one way of putting it. It does not construe the invention as I conceive it when put that way.

THE COURT: Why not?

MR. CLARK: Because it leaves out entirely the function and the result of that operation.

THE COURT: Well, that is a simple matter, of course; you have little protuberances which fit snugly into the blade from the top. I suppose that makes the key lock a little tighter, that's the function.

MR. CLARK: I think we can show your Honor just what that does.

THE COURT: Well, I can see it, you don't have to show me.

MR. CLARK: I mean as a matter of quantitatively speaking.

THE COURT: It makes it a little tighter, that's all. Do you want to call any witnesses? I don't know what they can say that we don't know already.

MR. CLARK: Yes, your Honor.

THE COURT: Do so.

MR. CLARK: First I should like to offer in evidence the patent in suit.

THE COURT: I thought we had that.

(Received and marked Exhibit P-2.)

MR. CLARK: Then I should like to read this stipulation which will shorten the proofs.

THE COURT: Don't read it, just offer it.

MR. CLARK: I will offer the stipulation.

(Received and marked Exhibit P-3.)

MR. CLARK: And I will offer as Exhibit P-4 a carton of defendant's blades, which is referred to in the stipulation, which they admit that they sold, these being the so-called Royal Knight blades.

(Received and marked Exhibit P-4.)

MR. CLARK: And as P-5 another carton referred to in the stipulation called New Deal blades.

(Received and marked Exhibit P-5.)

THE COURT: Defendant also?

MR. CLARK: Defendant also. The defendant's president, Mr. Donovan, is out of town. We subpœnaed him. Defendant's counsel offered to bring him back or suggested that they would stipulate the testimony that we wanted from him in order to save them the expense of bringing him back.

It has been stipulated that Mr. Donovan, the president of the defendant company, was employed by the Gillette Company or its subsidiaries from September, 1917, till September, 1933; from 1917 to 1928 he was in the sales department of the Gillette Safety Razor Company; from January 1, 1928 to May 6, 1931 he was pres-

ident of the Ruby Blade Corporation of New York, a subsidiary of the Gillette Safety Razor Company; from May 6, 1931 to September 9, 1933, he was vice-president of Otto Roth, Inc., of Newark, also a Gillette subsidiary; on September 7, 1933 he resigned from that position to become president of the defendant company, which company was formed at about that time.

MR. SMITH.

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THEODORE LINCOLN SMITH, called and sworn on behalf of the plaintiff, testified as follows:

DIRECT EXAMINATION.

By MR. CLARK:

THE COURT: No unfair competition?

MR. CLARK: No.

Q. 1. Mr. Smith, I understand that you live in Concord, Massachusetts; that you are production engineer of Gillette Safety Razor Company of Boston; that you have occupied that position since April, 1918.

A. Yes, sir.

Q. 2. That prior to that time you studied mechanical engineering in the Massachusetts Institute of Technology and have been connected with the American Locomotive Company in various capacities, draftsman, chief clerk, plant manager and in charge of the supervision of manufacturing expense, and the last position you had the title of production engineer and that you went from there to the Gillette Company; is that correct?

A. Yes.

Q. 3. Are you familiar with the various razors that have been produced by the Gillette Company since you have been employed by that company?

A. Yes, sir.

Q. 4. You are familiar with the Gaisman patent here in suit?

A. Yes, sir.

Q. 5. I should like to read you the first paragraph of the Gaisman patent——

THE COURT: I don't need any expert testimony.

MR. CLARK: You don't wish any?

THE COURT: I don't need it, I don't think.

MR. CLARK: I should like to get some in the record, your Honor.

THE COURT: Didn't I explain it correctly?

MR. CLARK: There are some more things I should like to have in the record.

THE COURT: Just supplement my explanation then, will you? By the way, have you got the file wrapper?

MR. PALMER: I have a certified copy of the file wrapper.

THE COURT: Of Gaisman, you mean?

MR. PALMER: Of Gaisman.

THE COURT: Let me see it. Just let me run over it a second, will you, counsel? I want to see what he says about Hartman.

MR. PALMER: Your Honor, the Hartman patent was not mentioned, was not of record in the Gaisman file history.

THE COURT: What?

MR. PALMER: Hartman was not of record.

THE COURT: Why not?

MR. PALMER: I found that Hartman patent on an investigation that I made at Washington in the early part of this year.

THE COURT: It is incredible that the Patent Office didn't have it. Is that so, counsel? How long before the application for Gaisman was Hartman granted by the Patent Office?

MR. PALMER: Well, Hartman was granted in 1917 and was filed as early as 1916, February 24th, while the Gaisman patent was filed about six years after the Hartman patent was filed, and the Hartman patent was issued almost ten years prior to the Gaisman patent.

THE COURT: And yet the Patent Office did not have it?

MR. PALMER: Did not find that reference.

THE COURT: They must have the files in even worse shape than I have often said they were in.

MR. PALMER: May I offer the certified copy as one of defendant's exhibits?

THE COURT: Yes.

(Received and marked Exhibit D-3.)

MR. CLARK: I should like to offer as Plaintiff's Exhibit P-6 triple size model of the original type Gillette razor.

(Received and marked Exhibit P-6.)

MR. CLARK: And Plaintiff's Exhibit P-7 triple size model of the razor of the Gaisman patent.

(Received and marked Exhibit P-7.)

Q. 6. Mr. Smith, his Honor mentioned the fact that the Gaisman arrangement permitted of a more accurate placing of the blade. So that we may have in the record the exact explanation of that, will you be

kind enough very briefly to explain just how that occurs, comparing the Gaisman razor with the original Gillette razor.

THE COURT: Well, of course, you ought to compare it with Hartman really.

MR. CLARK: Beg pardon?

THE COURT: It ought to be compared with Hartman.

MR. CLARK: Very well. Might we do this first——

THE COURT: Everyone concedes that it is an advance over the original Gillette.

Q. 7. Well, Mr. Smith, with respect to the positioning, the accuracy of the positioning of the blade, how does the Hartman patent—are you familiar with that?

A. No, sir.

THE COURT: Do you know who Hartman was?

THE WITNESS: No, sir.

MR. CLARK: We have another witness who is going to deal with the prior patents in rebuttal, your Honor, and this witness was going to present the matter of the patent in suit and infringement in our prima facie case.

THE COURT: Well, the only question, possible question of infringement is that the only difference between the blades is that this blade—I mean the alleged infringing blade, has not got the little nick at its four corners, that's the only conceivable difference. I don't need an expert to tell me that either.

MR. CLARK: No, as far as the blades are concerned, but I should like to have Mr. Smith, if he

might, who has made an examination of this quantitatively, to explain, so that we might have it on the record, the reasons for and the degree of greater accuracy attained by the Gaisman razor.

THE COURT: Go ahead.

MR. CLARK: As compared with razors in which the cap and guard are positioned with relation to each other.

Q. 8. Will you please proceed, Mr. Smith, on that basis.

A. In the old style Gillette razor the two outer pins on the cap positioned both the blade relative to the cap and the guard relative to the cap. In order that the blade shall fit on the studs and that the guard shall fit on these studs, the holes have to be somewhat larger than the pins. In this arrangement it is possible for the blade to move in one direction, to take up the clearance between the large holes and the small studs, and for the guard to move in the opposite direction. The result is that the amount of blade exposure which is an important characteristic of the safety razor may vary on account of this necessary looseness by about 5-1/1000 of an inch. In the Gaisman razor made in accordance with the patent in suit, there is a positioning means on the guard which with the hole in the blade holds the guard in fixed position with the blade. On the blade there are also another set of positioning means, the notches in the end of the blade that fit with posts on the cap and hold the cap in position relative to the blade. There is the same clearance between the holes and notches in the blade and the corresponding posts on the guard and the cap, as in the Gillette razor, but there is no direct close registration between the cap and the guard themselves. When the blade is placed on the cap and in registration with the posts and the guard is then placed on

the blade in registration with the positioning post on the guard, the guard and cap are locked together by the blade. Now, in this case if the clearance between the blade and the posts on the cap is taken up by the movement of the blade in one direction it simultaneously takes up the clearance between the blade and the guard, so that the blade cannot move in the other direction, and in this case the variation in the blade exposure is due to these clearances. There is only 3-1/1000 of an inch, a reduction as compared with the Gillette method of positioning of 2-1/1000, or 40 per cent.

Q. 9. Does this drawing which I show you correctly illustrate the demonstration that you have just made?

A. Yes, sir, it does.

MR. CLARK: I would like to offer that drawing in evidence.

(Received and marked Exhibit P-8.)

Q. 10. To what extent is a safety razor a precision instrument, Mr. Smith?

A. It is a precision instrument because it must be made so that there is the least possible variation in blade exposure.

Q. 11. What are the limits that you found possible commercially or desirable commercially?

A. Blade exposure must not be less than zero nor preferably more than 8-1/1000 of an inch.

Q. 12. The figures that you gave a moment ago with reference to the advantage quantitatively of the Gaisman way of registering the blade were made as a result of experiments which you had made with very greatly enlarged models?

A. Yes, sir.

Q. 13. What is the importance, if any, from a manufacturing standpoint of this advantage in accuracy of the Gaisman construction?

THE COURT: It is harder to make, isn't it? Not easier.

THE WITNESS: No, sir.

THE COURT: Why not?

THE WITNESS: You can have more latitude in your tolerances and achieve the same precision.

THE COURT: You mean by that that the blades don't have to be the same size as each——

THE WITNESS: There are a great many dimensions in a razor which affect the blade exposure, the clearances between the positioning means on the blade and the positioning means on the cap, and the guard, the width of the blade, various other important dimensions. All of them have to have practical manufacturing tolerances.

Q. 14. In the order of what, Mr. Smith?

A. Of about plus or minus 1-1/1000 of an inch. An increase in the tolerances lessens the cost of manufacture and the Gaisman method of positioning permits this increased tolerance without increasing the variation in the blade exposure.

Q. 15. And the blade exposure is the dimension that is referred to by the letters A and B on the drawing, Plaintiff's Exhibit P-8?

A. Yes, sir.

Q. 16. And do I understand correctly that allowing the same manufacturing tolerances for the two types of structures you will get more accurate determination of the blade exposure with the Gaisman construction than with the old Gillette construction?

A. Yes, sir, 40 per cent: more accurate as far as those features are concerned.

Q. 17. So by the same token you might allow greater manufacturing tolerances with the Gaisman construction and still get as good results as with the old Gillette construction, is that correct?

A. Yes, sir.

Q. 18. Which would be cheaper?

A. Yes, sir.

Q. 19. From a manufacturing standpoint. The Gillette Company has manufactured razors embodying this Gaisman arrangement that you have described?

A. Yes, sir.

Q. 20. What are they called?

A. The Goodwill Razors.

Q. 21. Are these razors which I show you specimens of Goodwill razors?

A. Yes, sir.

MR. CLARK: I offer these in evidence as Plaintiff's Exhibit.

MR. PALMER: May I just see what they are, please? I am going to object to these exhibits on the ground that they are not in accordance with the Gaisman disclosure.

THE COURT: Which are not?

MR. PALMER: Well, I can see there is a distinction here, the reinforcing corner lugs, and that is not present at all in the Gaisman construction.

THE COURT: What isn't?

MR. PALMER: These reinforcing corner lugs.

THE COURT: Are not where?

MR. PALMER: Are not in the Gaisman disclosure or the patent, the Gaisman patent in suit.

THE COURT: Let me see the patent.

MR. PALMER: You see the four pins, your Honor.

THE COURT: Well, they seem to me to be. Why do you say they aren't? They are the little nicks of the Figure 2.

MR. PALMER: Well, I withdraw my objection.

THE COURT: Yes.

MR. CLARK: I offer these razors in evidence as P-9 and 9-a.

(Received and marked Exhibits P-9 and P-9-a.)

THE COURT: Who was Gaisman, do you know?

MR. CLARK: Gaisman, your Honor, was president, I think, of the Auto Strop Company who made this invention while he was connected with the Auto Strop Company and the Gillette Company merged with the Auto Strop Company, and in that way acquired Gaisman's patent.

Q. 22. In view of the objection raised by defendant's counsel, would you mind, Mr. Smith——

THE COURT: He has withdrawn it.

MR. CLARK: Very well.

Q. 23. How does the operation of these Goodwill razors with reference to the function of the blade in positioning——

THE COURT: What do you call them, Goodwill razors?

MR. CLARK: Beg pardon?

THE COURT: What did you call those razors?

MR. CLARK: Goodwill, that's the name the Gillette Company gave to that type of razor.

Q. 23. (Continuing): How does this Goodwill razor with reference to the action of the blade in positioning the cap and the guard compare with that disclosed in the Gaisman patent?

A. It is exactly the same.

Q. 24. Does this drawing which I now show you correctly illustrate in the left-hand column the elements of the Gaisman patent?

A. Yes, sir.

Q. 25. And in the right-hand column does it correctly illustrate this Goodwill razor and the defendant's blade?

A. Yes, sir.

Q. 26. With the defendant's blade used in this Goodwill razor, how does this compare with the Gaisman patent in so far as the functioning of the blade is concerned in positioning the cap and the guard?

A. Just the same.

MR. CLARK: I would like to offer this drawing in evidence as P-10.

(Received and marked Exhibit P-10.)

THE COURT: How long ago did the Gillette patent expire?

MR. CLARK: The original Gillette patent expired in 1921.

THE COURT: Just sort of extending it with little improvements. The old trick, isn't it?

MR. CLARK: Well, I think improvements are entitled to protection as well as the basic invention.

THE COURT: That is the very peculiar thing about our patent law, that patents are extended from seventeen years up to about fifty-one on improvements. This never should have been granted

and was only designed for the purpose of extending the patent longer.

Q. 27. When was this Goodwill type of razor first put out by the Gillette Company, Mr. Smith?

A. In June, 1931.

Q. 28. Approximately how many have been put out since then?

A. Something over three and a half million.

Q. 29. And they have also put out a so-called bar type razor which I show you?

A. Yes, sir.

MR. CLARK: I offer this in evidence.

MR. PALMER: Really, your Honor, I see no connection of the bar type razor.

THE COURT: I never heard of the bar type razor.

MR. CLARK: I don't care. If you object I won't put it in.

That's all. Thank you, Mr. Smith.

CROSS-EXAMINATION.

By MR. PALMER:

XQ. 30. I just want to ask you one or two questions, Mr. Smith. Is there any way to adjust the edge extension of the blade in the old Gillette type of razor? I believe it is one of your exhibits, the early exhibits. Is there any means of controlling the blade extension in this razor?

A. Yes, sir.

XQ. 31. Will you kindly explain just how that is performed?

THE COURT: I don't even know what you mean by blade extension and I don't care about the extension therefore.

MR. PALMER: I withdraw the question. I would like to offer in evidence just two copies of advertisements that appeared in the drug issue of the Trade News, April 6, 1931.

THE COURT: Let me see them. You are through with this witness? Call your next witness.

MR. CLARK: I think that's all, your Honor.

THE COURT: I read this one about a frank confession. That is supposed to be a great trick in the advertising business. Who are your advertising managers now?

MR. CLARK: I don't know who is handling our advertising now, I am sure. I don't know that those have any pertinency to this case, I mean those advertisements.

THE COURT: I am rather interested in the abuse of advertising in the United States. Proceed, counsel.

MR. CLARK: I object to those as immaterial.

THE COURT: Wait a minute, I just want to read them. I am not going to let them go in.
Go ahead, counsel.

MR. PALMER: I would like to offer those two.

THE COURT: Wait a minute. Go on with your witnesses. I would like to read them. I don't think they have any pertinency. Go ahead.

MR. PALMER: Well, I am ready to call my expert.

THE COURT: Call him. I am asking you to.

JULIUS C. HOCHMAN, called and sworn on behalf of the defendant, testified as follows:

DIRECT EXAMINATION.

By MR. PALMER:

Q. 1. Will you kindly state your age and occupation, Mr. Hochman?

A. Forty-one. Mechanical engineer.

THE COURT: Are you the Hartman of the patent?

THE WITNESS: My name is H-o-c-h-m-a-n.

Q. 2. In any particular branch of engineering?

A. Why, I have spent about twelve years in adding machine and other allied accurate devices, typewriter devices and so on; about two or three years as superintendent of manufacturing, assembling pencils, mechanical pencils; about five years on general automobile and other devices in the hardware field, all of which were precision in character.

Q. 3. What connection, if any, have you had in your line of work with problems dealing with safety razors and safety razor blades?

A. I have developed and reduced to practice razors, blades, means of cutting razors and razor strops.

Q. 4. Have you ever had any experience as a patent expert?

A. I have appeared in——

THE COURT: Counsel, I should think that your cause of action here—this advertising makes me think so—is for unfair competition: "You can picture the feeling of a consumer when having purchased a package of imitation blades he tries to put the blade into one of these new razors and it doesn't fit." I should think you could prevent

anybody making a blade and pretending it would fit your razor.

MR. CLARK: We haven't been very successful in that.

THE COURT: Why not? Now, this blade that defendant is making doesn't fit your razor.

MR. CLARK: Yes, I think it does.

THE COURT: Because it hasn't got the crooked slots but if they made a blade that fitted your razor exactly, that would be another thing.

MR. CLARK: I think their blade does fit our razor exactly, your Honor.

THE COURT: It does not, I just tried it—excuse my contradicting—because it hasn't got these little slots here; it has a straight edge. Do you see? The shoulders, in other words, are straight. You have got that little circular nick. Therefore, this Royal Knight blade fits loosely. Give this to counsel. I mean if they are trying to sell that blade as fitting your razors I will stop them, only on the ground that it is unfair competition.

MR. CLARK: That is what we are after, to stop them.

THE COURT: But if on the other hand they were selling a Chinese imitation of your blade, which is admittedly an infringement, and saying that it fitted your razor, then you have the question of validity of your patent, of which I am very much more doubtful.

MR. CLARK: That is one of our blades, I think. The one that you had had a nick in it to fit any razor.

THE COURT: To fit what you said was your invention.

MR. CLARK: Your Honor, you will find the nick doesn't affect the fit at all; that nick is in addition to those recesses.

THE COURT: No, I suppose it doesn't really. I am wrong about that. Then it is a Chinese imitation.

MR. CLARK: Yes, your Honor.

THE COURT: And they are selling then something that does fit your razor?

MR. CLARK: Yes, your Honor, that is the purpose for which it is sold. They don't make any razor themselves.

THE COURT: Then it doesn't come within the terms of that advertising, does it? In other words, the horrible picture of the consumer purchasing a package of imitation blades putting it into the new razor doesn't work.

MR. CLARK: Well, I think these blades were put out after that advertising so that they would fit. That advertising probably was referring to some other competitors.

THE COURT: 1931, that was.

MR. CLARK: That was 1931. This company was formed in 1933 by our old employees.

THE COURT: Of course, I think the equities are all on your side. I think nothing of their action ethically. I don't think anyone would, any judge or any human being, as far as that goes.

Q. 5. Have you studied and do you understand the Gaisman patent in suit?

A. I do.

Q. 6. I want to call to your attention the booklet of patents which were put in evidence.

A. I have my book here.

Q. 7. Will you refer to the Hartman patent.

A. Yes, sir.

Q. 8. And will you kindly explain the cutting action of the blade with respect to the projections of both of the clamping components of the razors in Figs. 3 and 4.

A. In the Hartman razor we see a construction in which the projections on the guard fit into notches on the blade and a projection on the cap which also fits into an irregular opening in the blade. This gives a construction where the blade is located by two members, the guard and the cap. In the Hartman razor it is true that the razor parts are shown in reverse position from the Gaisman patent in so far that the projections which fit in the extreme edges of the blade are on the guard, whereas in the Gaisman patent they are on the cap and in the Hartman the projection which fits in the center of the blade is on the cap whereas in the Gaisman it is on the guard. But this is merely a reversal of parts with respect to the razor. The blade I consider to be identical with the Gaisman in both function and operation.

Q. 9. Would you say that the blade acts as a key in Hartman in the same sense that the Gaisman blade acts as a key in the Gillette razor?

A. It does.

Q. 10. Is it possible to rotate the Hartman blade when it is placed on the depending stud B′ of the cap B?

A. By not more than the small amount of clearance allowed in manufacture.

Q. 11. The clearance where?

A. The clearance between the stud depending from the cap and the inner periphery of the hole in the blade.

Q. 12. Would it be possible to rotate the blade if placed in that position?

A. Just by that small amount of clearance it would be possible to rotate the blade slightly.

Q. 13. When the Hartman blade is mounted on the guard of the frame would it be possible to rotate the blade shown in Fig. 4?

A. The blade could only be moved by that small amount of clearance which any two parts must have in order to permit them to be interchangeably fitted together.

Q. 14. What sort of accuracy would you get in connection with the use of the Hartman blade in the Hartman razor as compared to the efficiency of the Gaisman blade in the Gaisman razor?

A. The action and accuracy would be identical in the Hartman with that of the Gaisman. The blade, if it were shifted to one side, would strike against the projections in the cap and guard and the cap or guard could not be shifted any more so than they could in the Gaisman.

Q. 15. Would you say that there is a compensating error existing inherently in the Hartman construction as well as in the Gaisman construction?

A. I don't know what you mean by compensating error.

Q. 16. Well, as I understand this problem it is that if the blade is shifted to the right it will move to the right by reason of the clearance between the studs and the peripheries.

A. Correct.

Q. 17. Now, if it were possible to move the guard to the left then there would be a further error provided there would be some means of correcting that?

A. That is in the old Gillette type, it is possible to move the guard to the left, but I see now what you mean by compensating. In the razors of the Gaisman and Hartman type, if the guard were moved to the left

it would withdraw or retract the razor from its right-hand shifted position and again centralize it or compensate for its first shift.

Q. 18. Well, that is also true in the Gaisman patent?

A. That is true both of the Gaisman and the Hartman.

Q. 19. I just want to run through briefly the state of the prior art.

THE COURT: I don't want to hear it.

MR. PALMER: Well, then, I won't if——

THE COURT: The reason I don't care to hear it is I don't think anything as nearly closely approaches the Gaisman patent as Hartman, so what's the use of talking about some other?

MR. PALMER: That is all.

CROSS-EXAMINATION.

By MR. CLARK:

XQ. 20. In this Hartman patent you do not find, do you, any suggestion that the member B′ is to be used for positioning or anything else than holding the cap and guard together?

A. The actual showing of the Hartman blade——

XQ. 21. Will you refer to the specification, please, and tell me whether you find any reference in that of the character that I have referred to?

A. The specification states that "The razor blade is formed with a central slot A′ through which loosely passes the flattened stud B′."

XQ. 22. And that's all the reference there is to it?

A. I believe so.

XQ. 23. Yes. That's all.

MR. CLARK: If your Honor please, in view of the colloquy that we had a moment ago, I should

like to have substituted for the blade I first handed you and which I think was marked Plaintiff's Exhibit P-1, the one that I subsequently handed you, I would like to ave that marked.

(Blade is substituted and marked Exhibit P-1.)

THE COURT: Go ahead, counsel.

MR. PALMER: I have no more witnesses.

MR. CLARK: There is just one thing that I perhaps should have done on prima facie but neglected to do and there is no contest about it, namely, that Mr. Harlow, the vice-president and treasurer of the defendant company, was also an employee of the Gillette Company up until the time that he left that company and joined the defendant company when the defendant company was formed. That is agreed to, isn't it?

MR. PALMER: Yes, that is agreed to.

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CHARLES L. NORTON, called and sworn on behalf of the plaintiff in rebuttal, testified as follows:

DIRECT EXAMINATION.

By MR. CLARK:

Q. 1. Professor Norton, you live in Boston?

A. In Boston.

Q. 2. And are professor at the Massachusetts Institute of Technology?

A. I am.

Q. 3. Have you been doing work with Gillette razors and for this Gillette Company for a number of years?

A. Yes, sir, in connection with litigation.

Q. 4. Will you please compare the disclosure of the Hartman patent with that of the Gaisman patent in suit.

A. Very briefly, the disclosure of the Gaisman patent differs from that of the Hartman patent in that in the Gaisman patent as has been stated the blade is the means of positioning the cap and guard in relation to one another so that the three shall be in such a position as to be proper for use as a safety razor. In the Hartman disclosure this construction is certainly not followed. The blade shown in Fig. 4 is positioned by means of two tongues, G' described as tongues or springs which come down, go through the blade and go through the guard and are to all intents and purposes exactly like the old three-pin Gillette construction excepting that they are moved out to the ends and instead of round they are made square of rectangular cross-section.

THE COURT: And they are on a different part of the razor, that's the only difference, because they are on the bottom; they are on the guard rather than on the top. That's a difference.

THE WITNESS: Yes.

THE COURT: You said they were exactly the same. They are exactly different, aren't then?

THE WITNESS: My thought was that if you have two things on the two sides of the blade, whether they be cap and guard, that the position in the blade——

THE COURT: Well, I wouldn't know, that was up to the Patent Office, they gave Hartman his patent over Gillette. I think the whole thing, if you ask, Professor, is pretty unsound.

THE WITNESS: What I mean to say, sir, is that the blade is sort of a floating blade in this case

serving to position the ca pand guard in relation to one another.

THE COURT: Was there a Gillette patent case. What is the citation of that?

MR. PALMER: 64 Fed. (2d) 10.

MR. CLARK: You mean the original case?

THE COURT: What is the case about?

MR. PALMER: That is the Gillette v. Hawley Hardware.

THE COURT: Get it.

MR. CLARK: I have it here, your Honor.

THE COURT: Well, I will get it in a book, 64 Fed. (2d) please, Mr. Simon. Is that this same case as this one?

MR. CLARK: The Gaisman patent was in that case.

THE COURT: Was it declared valid over Hartman? I will get it in a minute. Don't bother to tell me about it, I will get it. Go ahead, Professor.

A. The Hartman specification describes the member B′, the nub that sticks up as passing loosely through the blade and later in the specification states specifically that the blade is accurately centered and aligned with respect to the holder and particularly the comb teeth thereof by means of springs G secured as by rivets G-3, &c., to the upper side of the back plate. These tongues described as projections pass through and snugly engage the side walls of a notch $A^2$ formed in the corresponding end of the razor blade and are received in notches or recesses $B^2$ formed in the front plate B of the blade holder. They are the means of positioning the blade in terms of both the other members.

Q. 5. And they correspond, as I understand it, although on the opposite part of the razor, with the two outer studs of the old original razor?

THE COURT: I have read that case. It is of no value, simply says no infringement.

Q. 6. Exhibit P-6?

A. Yes, sir.

MR. PALMER: Well, your Honor, the Hartman patent was not cited.

THE COURT: Was not? Then what did you give it to me for?

MR. CLARK: May I point out, your Honor, that the Hartman patent refers to a blade which is not flexed as these Gillette blades are?

THE COURT: What do you mean by that?

THE WITNESS: It is a flat blade as so shown in Fig. 3.

THE COURT: Made of flexible steel, is that what you mean?

THE WITNESS: He states in the specification that it may be either flexible or rigid but preferably of such a thickness as to be comparatively rigid rather than flexible, and in a sense distinguished it perhaps from the general Gillette type of blades.

THE COURT: Do you agree with me, Professor, that the difference between Hartman and Gaisman is these four little protuberances on the corner of the cap, in each corner of the cap?

THE WITNESS: Why, I think the difference is that the blade is provided with means in Gaisman to keep the other two things in place.

THE COURT: Well, aren't those means—I say to you as I said to counsel, aren't those means those four little protuberances?

THE WITNESS: Why, I think the means were the contour of the end of the blade so that it fits into the protuberances.

THE COURT: Well, both, one has to work with the other, of course, the little protuberances and the little nicks or the contours in the blades, you agree with that?

THE WITNESS: Yes, they are the co-operative means. It is difficult for me to think of a blad being positioned unless it is positioned in the razor.

THE COURT: Well, I mean to say both the nick and the protuberances.

THE WITNESS: Yes, sir.

Q. 7. Professor, what happens if the blade exposure is too great?

THE COURT: You would cut yourself, wouldn't you?

A. Yes, it ceases to be a safety razor.

THE COURT: I generally cut myself anyway.

Q. 8. And if it isn't great enough?

A. Then it either pulls in a futile fashion or doesn't cut at all.

Q. 9. I think that is all.

CROSS-EXAMINATION.

By MR. PALMER:

XQ. 10. Professor Norton, I would like to have you refer to the Hartman disclosure, particularly with reference to the depending stud B' on the cap of the razor.

A. B'?

XQ. 11. Yes, with the cap positioned around the stud, would it be possible to shift the Hartman blade longitudinally or transversely?

A. Both ways. It fits it only loosely, as stated in the specification.

XQ. 12. Well, I would like to have you view closely the size of the stud B' illustrated in Fig. 4 and state how much of a clearance there is between the edges of the opening and the surfaces of the stud.

A. I would not assume that I could add anything to what you might see yourself, sir. There are two lines that are very close together and the Patent Office drawing in the matter of the thickness of the lines and so on I haven't found to be very helpful in——

XQ. 13. Would you say it is close fit?

A. It says it is loose fit and the description looks to me that they have drawn double lines so as to be sure that you wouldn't think that the stud and the edge of the blade were coincident.

XQ. 14. How much of a turn could you give it?

A. Enough to cut yourself quite badly.

XQ. 15. Approximately would you say one degree, two degrees?

A. If you care to have me compute it I will try and do so. Assuming that this is a blade of normal size, then that stud is of the order of 3/8 of an inch, between 1/4 and 3/8 inch in length assuming this is drawn to scale and the looseness indicated by the draftsman here is of the order of 1/32 of an inch or less, I won't try and define it definitely, it would mean that that blade would have a rotation possibly of 1/16 of an inch or something of that kind at the very corner.

XQ. 18. Well, may I call your attention to Fig. 2 in which the sides of the opening A' are against the sides of the stud B'?

A. In that drawing they appear to be just as close together as the draftsman could make them.

XQ. 19. Would you say that was a close or loose fit?

A. I should say, as shown in that drawing, that was shown to be a fit that they touched one another.

XQ. 20. And it would be impossible to rotate the blade?

A. If the construction is exactly as shown here that would be true in this Fig. 2.

XQ. 21. So the blade, according to Fig. 4, really has means to locate itself with respect to the cap?

A. As shown in Fig. 4?

XQ. 22. Yes.

A. I don't think so.

XQ. 23. Well, how about the showing of Fig. 2?

A. In the light of the specification, it seems to me that it is futile to suggest that it does anything but pass loosely through it. The drawings are to illustrate, I understand, and I haven't supposed that they could be interpreted, particularly where there are differences between the two, as being very helpful.

XQ. 24. Well, Figures 2, 3 and 4 relate to the same construction in the Hartman razor, is that correct?

A. Yes, sir.

XQ. 25. Would it make any difference, Professor Norton, if the guard in Hartman had a projecting lug instead of the cap having a projecting lug for positioning the blade? In other words, what I am trying to get at is this: the mere reversal of parts for positioning the blade in one instance you would have say a depending stud from a cap and in the other case you would have an upstanding boss or lug from the guard?

A. If I understand you, would the efficiency of the positioning means be the same?

XQ. 26. Yes.

A. Were the means reversed in order, I don't think there would be the slightest change in the blade as shown in Hartman.

XQ. 27. With respect to the Gaisman razor in suit, according to Mr. Smith's testimony there is a certain clearance between an aperture or recess of the blade with respect to the lug; is that correct?

A. The clearance between the blade and the boss, as I think he described it, on the guard of the Gaisman——

XQ. 28. There is a certain clearance?

A. There must be if the structure is to be useful and be assembled easily.

XQ. 29. Would you say that was a close fit or a loose fit?

A. As shown in the patent?

XQ. 30. According to the Gaisman construction, if there be a clearance is it a loose fit or a close fit?

A. If there is a large clearance it would be properly described as a loose fit; if there is a very small clearance it might be described as a tight fit or a push fit. It is a question of degree in the size of the clearance.

XQ. 31. Well, how about a clearance of 4/1000 of an inch?

A. A clearance of zero means that you cannot push them together; a clearance of 4/1000 means that on such little things as we have been discussing here that they could be easily slipped over one another.

XQ. 32. Well, would you say that was a loose fit if it is removable?

A. To be removable I should say that it was what we would call a good fit, not a loose fit.

XQ. 33. Well, is a loose fit a removable fit?

A. Not necessarily. I think it is a question of relative sizes of these clearances and of the purpose to which the devices would be put.

XQ. 34. After all, Professor Norton, don't you think all these distinctions are eye-lash differences?

A. Oh, no. If you are to locate the blade of a safety razor in such a manner as to make it effective as a safety razor and suitable for the comfort and convenience of the people who use it, it must be positioned to have your structure so that you can locate the blade with precision to very few thousandths, and therefore the proper fits for assembling these things for convenience and so on must be accompanied not with a looseness but with a degree of precision that will enable the blade to stay where it belongs.

XQ. 35. Isn't that substantially the result achieved by the original pioneer Gillette patent?

A. By another construction in another way, the same thing was accomplished. The blade was properly positioned.

XQ. 36. And that the positioning or locating means in the old Gillette was sort of a stud and in the Gaisman construction it is just simply studs and lugs; is that the distinction?

A. The distinction is that in the original Gillette the same means, a stud, passed through both blade and guard and positioned them both in relation to the cap in which the pin was firmly driven and in the Gaisman structure you have what you have described as lugs and studs, part of them on one member and part of them on another, co-operating with different means, as the patent says, spaced from one another to locate the Gaisman blade.

XQ. 37. Well, the real object of the depending studs in the old Gillette razor really prevented the rotation of the blade with respect to the cap and guard?

A. Prevented the rotating, prevented the transitory motion sideways and prevented lengthwise motion to an extent as well.

XQ. 38. But essential rotation?

A. I don't think it is any more essential rotation than it is translation sideways, displacement.

XQ. 39. By a difference of clearances?

A. By a difference of clearances.

XQ. 40. I have here a Goodwill type of Gillette razor and a New Deal type of blade, a blade manufactured by the Essex Razor Blade Corporation, the defendant in suit, and I place this blade over the guard and I ask you to state what sort of a fit that is.

A. That is a loose fit of the blade.

THE COURT: Your razor blade is a Chinese imitation. I am not even going to hear you on infringement, it is ridiculous.

MR. PALMER: But according to the Gaisman construction, the fit is tight and it calls for specific means.

THE COURT: Then I won't let you sell them because you are cheating the customers. You can't have it both ways. You will have to advertise, or I will make you include in your advertising, "Our razor blades do not fit Goodwill razors."

MR. PALMER: I was under the impression that would be a question that had to do with unfair competition.

THE COURT: That's what it is, it would have.

MR. PALMER: Rather than a question——

THE COURT: I agree with you.

MR. PALMER: —dealing with patent protection.

THE COURT: I agree with you but we will reform the bill to include that if necessary. I have no sympathy with your client, counsel, at all. I

think his conduct any court of equity would frown upon.

MR. PALMER: Well, may I——

THE COURT: One of the things you don't do that your people have done.

MR. PALMER: Well, where there is patent protection, of course, it is another question, but where——

THE COURT: That is another question. Of course, I haven't passed on that.

XQ. 41. Reference was made to the fact that the Gaisman blade and razor may be made cheaper than the old Gillette razor. Just how do you arrive at that conclusion?

MR. CLARK: I don't think this witness testified about that.

THE COURT: No, he is not a manufacturing expert and he didn't make the conclusion, the other witness made it.

XQ. 42. Would you have a cumulative error in the Hartman construction with respect to the displacement of the blade by reason of clearance between the studs of the razor and the apertures of the blade?

A. In the Hartman construction, I understand you right?

XQ. 43. Yes.

A. In the Hartman construction it would be possible for the blade to be displaced in one direction and the cap in the other in relation to the guard and the clearances would then cumulate.

XQ. 44. And, of course, that is not true in Gaisman, is it?

A. They don't cumulate in the same way or to the same extent.

XQ. 45. I am going to show you a rough sketch of a blade according to the Hartman disclosure, indicating the stud and the cap in section lines and also indicating parts of the spring in section lines. Now—assume for example that the blade is shifted to the right as shown, then the left-hand side of edge of the opening would be against the corresponding left-hand side of the stud; is that correct, if the blade were shifted to the right?

A. You are asking me to assume that this which you have drawn is the Hartman structure?

XQ. 46. Here is a rough sketch of the Hartman blade, further illustrating schematically of course a section of the depending stud of the cap within its slot and also portions of the spring in the side notches of the blade, with the blade, however, shifted say, for example, to the right. If the blade is shifted say to the right, there will be a slight clearance at the right-hand side of the central aperture with respect to the stud, is that correct, and the left-hand side of the central opening would be abutting the left-hand side of the stud, is that correct?

A. *It all depends upon whether you are outlining* the disclosure of the Hartman patent in such a way as to follow the specification, or whether you are designing something that is distinctly outside the specification. If your stud fits loosely, this clearance might be enough to be taken up and it might not. That would all depend upon how loose. I don't want to split hairs with you, but I think I get your point.

XQ. 47. Assuming we look at Fig. 4 of Hartman, if this blade is now bodily moved to the right, will one side of the slot abut the side of the stud, that is, there will be a slight clearance there at the opposite side?

A. Not if the positioning means described in the specification are present and in operation to hold the

blade just where you put it so that you cannot move it in relation to the central stud; if you mean that the blade itself alone is put over the stud and none of the rest of the razor assembled, of course you can move the blade sideways.

XQ. 48. I just was assuming we could move the blade slightly.

A. If there is nothing else to prevent it you might, but if the springs are in position, go down through into the guard as described here, then you cannot.

XQ. 49. But there would be a clearance between the springs and the end notches?

A. That clearance you could take up, and if that were sufficient in magnitude to allow you to move the blade over so that it bumped the stud, it would probably go against the side of the stud in taking up this clearance. It depends on relatively how big they are.

XQ. 50. And the end notches of the blade would be against the springs as well?

A. The end notches of the blade would be—as described in the specification—be positioned accurately by those springs and they would be against them in the first place.

XQ. 50a. You see what I am trying to get at is the compensating error feature that you claim in Gaisman—I would like to be very specific on that with reference to the Hartman construction—you mentioned a little while ago that there is an accumulative error in Hartman. We contend that there is no accumulative error, that the error in Hartman corresponds to any error in Gaisman, or very close to it, and my reason for examining you on this score is to prove to the Court that any displacement of the Hartman blade to the right will cause the sides of the opening and the sides of the recesses to abut the stud of the cap and the springs of the guard.

THE COURT: I don't know what you are talking about. I don't believe any Court of Appeals would either.

MR. PALMER: Well, that is in accordance with a certain exhibit that has been submitted, and I am trying to prove that Hartman does the same thing.

THE COURT: Well, you are just testifying, and as you are not qualified, I don't see what's the use of it.

MR. PALMER: My expert testified that there was no accumulative error in the Hartman construction, and I am trying to prove——

THE COURT: It is obvious that the blade of Gaisman fits more snugly than the blade of Hartman. That is obvious, if that is what you are trying to get at.

MR. PALMER: In connection with say neutralizing of that error that might be due to the displacing of the blade with respect to either the cap or the guard.

THE COURT: It fits more snugly into the cap. It is obvious that it should. The question is, isn't it so obvious that there shouldn't be any invention? That's the point.

MR. PALMER: Well, I have no further questions.

THE COURT: All right. Thank you, Professor.

PLAINTIFF RESTS.

THE COURT: Have you anything else, counsel?

MR. PALMER: I have nothing further other than to submit a stipulation that has been signed by both attorneys with regard to patents that certified copies may be used in place of originals.

MR. CLARK: What is your Honor's pleasure with reference to argument and briefs?

THE COURT: I don't think we need any briefs. It surely doesn't need any briefs in the case. When do you want to argue it?

MR. CLARK: Whenever your Honor wishes.

THE COURT: I have an argument in another patent case Monday. We might have a patent field day Monday. I will argue one in the morning and one in the afternoon.

MR. CLARK: On Monday?

THE COURT: Yes. Suppose we say 2:15 on Monday. Is that agreeable to you?

MR. PALMER: Yes.

THE COURT: I will decide both cases on that day.

MR. PALMER: You don't wish any briefs?

THE COURT: No, I don't think it is necessary. I would like to know why, if any one can discover, why the Hartman patent wasn't cited to the Gaisman patent in the Patent Office.

MR. CLARK: If you ask me, your Honor, I would say it would be because the Hartman patent is the same so far as the Gaisman improvement is concerned as the original Gillette, and no better.

THE COURT: Well, it is certainly closer than some of the patents that were cited. There cannot be any doubt about that.

MR. CLARK: Of course, as your Honor has previously stated——

THE COURT: I tried to get the Examiner to come here in one patent case where he hadn't cited a patent, and explain why he hadn't done it. He

wouldn't come, but I did discover finally from the Patent Commissioner that the reason why he hadn't cited it was that the patent he hadn't cited was stuck in the files to another patent which didn't seem to me a very good reason.

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Final argument before Hon. William Clark, J., at the Lefcourt Building, Newark, New Jersey, on Monday, October 29, 1934, at 2:15 P. M.

THE COURT: Proceed, counsel.

MR. CLARK: Your Honor please, this record is probably so fresh in our minds it will not be necessary to deal at great length upon very many of the points. I should, however, like to make clear exactly what the patent in suit points out to be the departure.

THE COURT: Where is the patent? Did you get me, counsel—may I start with saying I would like to know—I didn't have time to find out, I was so busy with other matters—I would like to find the original report of the Gillette Razor Company case. Wasn't the original Gillette patent litigated?

MR. CLARK: Yes, your Honor, it was Gillette against Clark Razor Company in New Jersey.

THE COURT: Oh, in New Jersey was it?

MR. CLARK: Yes.

THE COURT: Well, have you got the reference to it?

MR. CLARK: I am sorry, I haven't, no.

MR. PALMER: I believe I have that, in 1911.

THE COURT: Yes, it is some years ago. What is it? I will get it.

MR. PALMER: 194 Federal 421.

THE COURT: Where is your patent? Just give it to me so I will have it before me. All right. Now, what was the name of the other anticipating patent, Hartman?

MR. PALMER: Hartman, 1,247,266.

THE COURT: Is this the same Clark Blade & Razor Company that figured in the other case?

MR. PALMER: I believe he had issued to him several patents and several of those I have cited in my——

THE COURT: No, but you gave me a case the other day.

MR. PALMER: Yes—well, the case you had in mind had to do with the improvement of the Gillette, Gillette v. Hawley Hardware Company, 64 Fed. (2d), page 10.

THE COURT: You gave me one that had the Clark Razor Blade Company; I noticed it on account of being my own name.

MR. PALMER: That was Gillette v. Hawley Hardware Company.

THE COURT: Get me also 187 Federal.

You gave me the other day a case against Clark——

MR. CLARK: I might say that the District Court's decision in the Hawley case is in 60 Fed. (2d), if your Honor is interested in that.

THE COURT: It was certainly the Clark Razor Blade Company case, I noticed the name.

MR. PALMER: I have a copy of that case right here.

THE COURT: Judge Manton's opinion, wasn't that the Clark Company?

MR. PALMER: That was Hawley Hardware, but I really believe Clark was the real defendant. Of course, there is another case, Gillette v. Standard Safety Razor Company, which is directed to a blade substantially the same as the defendant's in suit. That is reported in 64 Fed. (2d) page 9—pages 9 and 10.

THE COURT: "The infringement consists of selling razor blades manufactured by the Clark Razor Blade Company of Newark." That is the third line. What is this company? Are they still in business?

MR. PALMER: I don't know anything about the company.

THE COURT: 187 is page 149. Is this the original basic pioneer patent?

MR. CLARK: No.

THE COURT: Well, I want that case.

MR. CLARK: That is the case in 194 Fed.

THE COURT: No. 194 is not the original basic Gillette patent surely, is it?

MR. PALMER: That is the one that I have.

MR. CLARK: It was against the Clark Company.

THE COURT: Dealt with in a very cursory manner for such an important patent, wasn't it—ever appealed or anything?

MR. CLARK: It was appealed, yes.

THE COURT: Is there any Supreme Court case on it?

MR. CLARK: No, Court of Appeals.

THE COURT: I have got the Court of Appeals.

MR. CLARK: It didn't go to the Supreme Court.

THE COURT: I thought—maybe this is just my ignorance about it, but I thought there was a patent for the original idea of a guard on razors.

MR. CLARK: As I remember it, the decision upheld the Gillette patent as covering a waferlike blade of waferlike thinness. That is the basic idea of the Gillette razor.

THE COURT: You mean it wasn't the guard, that that wasn't the original?

MR. CLARK: What the patent covered was the idea of that very thin blade.

THE COURT: Wasn't there any litigation involving the idea of applying the guard to the blade for your face? That seems to me clearly the touch of genius. I mean I quite concede that was a darned good idea.

MR. CLARK: The original Gillette patent is included, I think, in the defendant's exhibit of patents in this case.

THE COURT: I have it open, but I am wondering—that is curious, isn't it—I have always thought that Gillette was quite a boy because I thought he designed this original guard. Are you correctly advising me about that?

MR. CLARK: I think so, your Honor.

THE COURT: Well, I mean I wish you would be sure about it. I certainly had an impression, reading the case—because I read a good many patent cases just for amusement, in which there was some discussion of an analogous art and it seemed to me that there were some patents for some guards for hose that were cited against the patent and I thought it was the Gillette patent with respect to razors, and I think that the argument was that the touch of genius was in using this idea for the first time with respect to shaving or with respect to razors that were used for shaving. I mean I cannot see there was so much trick in using these blades.

MR. CLARK: I think that it was by the use of the thin blade that Gillette first perfected a safety razor with the guards, etc.

THE COURT: Not according to this case; there were a good many others.

MR. CLARK: First perfected it commercially.

THE COURT: "Old form of concave blade . . . Use of the blade deals rather with the manner of holding it and the means provided for guarding it from cutting the face when in use."

Now, I thought that was the invention. I am clearly mistaken about giving Gillette any credit for it. But who did get the credit for that? Wasn't there any litigation about that?

MR. CLARK: I haven't read that case.

THE COURT: I might say, counsel, I happened to see Judge Haight, as you know, at luncheon, and he wanted me to tell you that he said there were three thousand safety razor blade patents. Is that true, three thousand?

MR. CLARK: I haven't the slightest idea.

THE COURT: Aren't you the general counsel for the company?

MR. CLARK: Yes, sir. You mean owned by the Gillette Company?

THE COURT: No, that there were three thousand patents issued on safety razor blades. Judge Haight had some litigation in which I don't know whether he represented you or not, but anyway he picked up that interesting fact.

MR. CLARK: Well, I am not informed of that, your Honor.

THE COURT: Quite a number of patents on safety razor blades.

MR. CLARK: Yes, if that is true, but I don't know anything about that.

THE COURT: Well, you say now, do you, that there is no patent about the guards; is that right?

MR. CLARK: No, I don't say that.

THE COURT: I mean no litigation involving patents about the guard.

MR. CLARK: So far as I know, that is the decision that decided on this original Gillette patent and I think there was no other decision.

THE COURT: In other words, all Gillette did then was to have—apparently, he didn't even do it himself—to have some kind of thin steel made. "After his failure he went to an expert by the name of France." In other words, Mr. France probably was entitled to the credit.

MR. CLARK: That occurred before I entered the practice of law so I don't know.

THE COURT: It occurred just about the time I was born.

MR. CLARK: I mean the case was decided.

THE COURT: All right, go ahead.

MR. CLARK: With reference to the patent in suit I should like briefly first to state just what the distinction or departure is from this original Gillette. The first two paragraphs of the patent in suit, I think, express that quite well, if I may read them.

THE COURT: No, don't read them, please, because I have read them several times and I have them right in front of me.

MR. CLARK: Very well. Well, the point is that the original Gillette in this form which I hold in my hand had these two studs near the ends of the cap for

holding both the blade and the guard in position. Those were what would be called in the patent jargon the positioning means, those two studs—they positioned both the blade and the guard. In that connection if your Honor would look at the original Gillette razor, 775,194, the patent for the original Gillette razor, you will note that they operated on the same system.

THE COURT: What is the number of it?

MR. CLARK: 775,194. I think it might be the original one in the book, the first one.

THE COURT: Yes, it is. All right.

MR. CLARK: You will see that they operated upon the same system. The two prongs 11, shown for example in Fig. 6, which in this case are connected to the guard, extend up through holes in the blade and in the cap and therefore hold all the members in the desired position as nearly as they may. The difference in the commercial embodiment was that these prongs were transferred to the cap instead of being on the guard and they are in the form of round things instead of flat things. Now, the Gaisman invention proceeds on a somewhat different theory than anything that has been shown in the prior art, in that it does not have means on one of the members for positioning the blade and the other member, but it has means on the guard, for example, for positioning the blade with reference to the guard or the guard with reference to the blade, and then has other means on the cap, for example, for positioning the cap with reference to the blade or the blade with reference to the cap, so that the blade in a true sense operates as a key for holding the three parts together. With this Gaisman construction you have no means for positioning the cap and guard accurately in the absence of the blade; the blade

is the key to the situation, the key to the structure, and by reason of that fact, as was explained by one of the witnesses and I think as your Honor saw before he explained it, you could get a rather closer adjustment, a much closer location of the cutting edge of the blade with reference to the guard and cap, or as they put it a much closer blade exposure down to a few thousandths of an inch, as the witness explained, by reason of this use of the blade as a key for positioning both the cap and the guard with reference to the blade and as distinguished from the old system in which the cap or the guard had means for positioning both the blade and the other member. It is possible, using the same manufacturing clearances, to get a 40 per cent. better, more accurate regulation of the blade exposure by this means. The question of infringement, I think, need not be dealt with very fully.

THE COURT: I have made up my mind there has been infringement.

MR. CLARK: Now, with reference to validity, I think the only patent that was referred to by the defendant is Hartman.

MR. CLARK: In that connection, as to Hartman, I should like to refer again to the original Gillette patent. All that Hartman has done as compared to this commercial form of the original Gillette patent is to revert to what was disclosed in the original Gillette patent itself, that is, instead of using round prongs on the cap for positioning the other two members as in the Gillette patent, Hartman has used flat tongue-like members on the guard——

THE COURT: You told me the other day, counsel——

MR. CLARK: —for doing that thing.

THE COURT: —that your invention, your touch of genius, your novelty or departure from previous practice consisted in these four, I might almost say, tiny little ridges on each of the four corners of the cap which fitted into indentations in the blade and thereby gave the blade a certain snugness that it otherwise wouldn't have had.

MR. CLARK: Well, if I gave your Honor——

THE COURT: Well, I mean you did say it and it is the truth. What is the use of trying to get away from it now?

MR. CLARK: Well, I am not trying to get away from it. What I am trying to say is, as I said, I think, several times the other day, that that was not in itself the invention.

THE COURT: Don't be legalistic.

MR. CLARK: I am trying not to be, your Honor, and to explain that my conception of this invention is the use of this blade as the key for positioning these three members together.

THE COURT: You stuck in some jargon—you have added positioning and keys—the plain English of it is that these four little protuberances are the new thing about this cap as contrasted with the Hartman cap.

MR. CLARK: Plus the fact that the protuberance, if your Honor wishes to call it so——

THE COURT: That's what it is, isn't it?

MR. CLARK: Yes—on the guard do not have anything to do with the proper positioning of the cap; that is left to the blade.

THE COURT: There is no sense in that remark. The protuberances are on the cap.

MR. CLARK: Yes, that is the cap.

THE COURT: Well, it makes the blade fit a little more snugly, I should think, in that cap.

MR. CLARK: Yes.

THE COURT: Now, Hartman did the rest of it.

MR. CLARK: Let's carry that a little further, if we may.

THE COURT: Have we got a model of Hartman?

MR. PALMER: No, I have not, sir.

THE COURT: Why don't you have one made?

MR. PALMER: Well, the disclosure is fairly elementary.

THE COURT: What—you had better have one made because you are going to have to face this case on appeal so you had better have one made and introduce it in evidence. Do you agree to that?

MR. PALMER: Well, of course——

THE COURT: What? Do you agree to it?

MR. PALMER: Well, I think it would explain the construction of it but after all, your Honor, we——

THE COURT: After all, I am telling you to have it done. Now, have it done, please.

MR. CLARK: If I might just refer to these four little pins which your Honor correctly emphasizes you will note that these four little pins on the Gaisman cap have to do only with the blade.

THE COURT: Yes, I agree.

MR. CLARK: They are, if we might say, substituted in part for the two prongs that were on the original Gillette cap.

THE COURT: I agree.

MR. CLARK: Which had to do not only with the blade but with the guard.

THE COURT: They were not only substituted because both with you and with Hartman the prongs are, as you correctly said a minute ago, on the guard instead of on the cap, so on both Hartman and you you have one prong on the cap and two prongs on the guard as contrasted with the original Gillette, which had three prongs on the cap. Personally, I cannot see —well mechanically maybe yes, I should think probably the stresses are better covered if you have the prongs distributed between the cap and the guard. I should think that probably was so.

MR. CLARK: It isn't a matter of stresses, your Honor.

THE COURT: Well, fittings.

MR. CLARK: It is a matter of fit, accuracy of fit.

THE COURT: Yes, I meant to say. I accept the correction.

MR. CLARK: Might I proceed just a moment with what I started to say, that we have these four pins that you referred to on the Gaisman cap and they co-operate only with the blade. Now, that wouldn't suffice alone to position the blade with reference to the guard; there is a protuberance on the guard and a hole in the blade and neither the pins on the cap, neither do they co-operate in any sense with the guard, nor does the protuberance on the guard co-operate in any way with the cap. There is just no fit there at all, nothing to hold them except when the blade is there. Now, if these four pins that you referred to passed through holes in the guard as well as through notches in the blade and were the sole means of holding the razor together, then you would have the old Gillette.

THE COURT: I understand, but you don't seem—I don't want to say, counsel, that you wilfully misunderstand me, but the only difference, the thing that you want to rely on for novelty are these little protuberances. Now, they are novel, I concede it; they haven't been on any other razor blade or any other razor cap in the world. Whether they are not just mechanical improvements, which is my present inclination, is a different thing. But that's all they are.

MR. CLARK: Well, if that is so then I would like to refer a moment to the Hartman patent which I say is exactly the same as the original Gillette patent, in that the positioning members which are flat prong-like things in the Gillette patent, just as they are in Hartman, happen to be on the guard instead of on the cap.

THE COURT: You say happen to be. Now, that implicates what all the Hartman invention happens to be.

MR. CLARK: No, your Honor.

THE COURT: What is exactly the touch of genius that gave Hartman his patent over Gillette?

MR. CLARK: Hartman had an adjustable handle.

THE COURT: I mean as far as the blade is concerned.

MR. CLARK: I don't think there is anything in that; he was directed primarily to the means for adjusting the handle, &c.

THE COURT: Wait a minute, let me read it—yes, I think you are right.

MR. CLARK: And so far as holding the blade and the cap and guard together——

THE COURT: Of course, I only answer you there by saying that I am inclined to think that even changing the studs or the protuberances is not invention.

MR. CLARK: Well, if I might make the point clear that I am trying to make with reference to the original Gillette patent and with Hartman, it is this that in each of those structures they had means which correspond generally to these two prongs on the original Gillette type razor and that the difference in those means as compared with the original Gillette type razor is that instead of being on the cap and passing both through the blade and the guard they are on the guard and pass through both the blade and the cap, which as Professor Norton explained is a mere reversal and makes no difference whatever. But the essential thing about both the original Gillette and Hartman and this commercial form of the original Gillette is that these two prong members, positioning members, pass through both the blade and the other member and are the only means for the holding of the three members in the proper position.

THE COURT: Your only additional means are these four little things we are talking about.

MR. CLARK: Yes.

THE COURT: Now, why not agree that that is the alleged invention, that is the improvement?

MR. CLARK: No, but I am going to state again, your Honor, that the invention is in having blade positioning means on both of the members.

THE COURT: That's already been done by Hartman.

MR. CLARK: No, your Honor.

THE COURT: Yes, it has been done.

MR. CLARK: Well, that's where I beg to differ.

THE COURT: Well, I mean it has been done because you have on Hartman one protuberance coming from the cap and two of them coming from the guard.

MR. CLARK: That is the point I am just coming to, so far as the central member, which is the protuberance that your Honor speaks of, as coming from the cap——

THE COURT: You had to have a central member, of course, because of the handle.

MR. CLARK: You had to have it to clamp the parts together and it has to be on the cap.

THE COURT: Has to be on the cap.

MR. CLARK: But in Hartman there is not the slightest suggestion that this is in any sense a positioning or regulating means for positioning the blade. On the contrary, it states at page 1 of the Hartman specification in the right-hand column, beginning at line 80: "In the drawings: A represents the double edged razor blade which so far as certain features of my invention are concerned, may be either flexible or rigid, but preferably is of such thickness, as indicated in the drawings, as to be comparatively rigid rather than flexible. The razor blade is formed with a central slot A′ through which loosely passes the flattened stud B′."

There is no positioning function with reference to that stud. That is merely a clamping part for clamping it together and then as compared and contrasted with that we find on the next page with reference to those two prongs G′, beginning at line 53: "The blade A is accurately centered and alined with respect to the holder and particularly the comb teeth thereof, by means of springs G secured as by rivets $G^3$ to the upper side of the back plate C adjacent the center of the latter, and extending beyond to the end of the latter where they are down-turned. The down-turned end of

each spring is formed with a teat or projection G′ which passes through and snugly engages the side walls of a notch $A^2$ formed in the corresponding end of the razor blade and are received in notches or recesses $B^2$ formed in the front plate C of the blade holder."

THE COURT: I think that is just the thing——

MR. CLARK: That is different, that the snug fitting positioning of the blade is taken care of entirely by those two prongs which extend from the guard, in this case, through the blade and through notches in the cap member.

THE COURT: I agree. That is the same as yours except——

MR. CLARK: And the central clamping lug is not in any sense a positioning means.

THE COURT: Oh, now you have shifted your ground. You say now, is it, that your invention—I don't think you improve your position——

MR. CLARK: I don't think I have shifted it, your Honor.

THE COURT: You now say that the central prong in your razor blade in some way fits more closely than the Hartman.

MR. CLARK: Well, I say just this, your Honor, that in ours the projection on the guard, if that is what your Honor is referring to, is definitely what Hartman would call an aligning or centering means for the blade, whereas Hartman——

THE COURT: I don't take it from the word—you are now attacking Hartman's patent on some other ground that you haven't apparently thought of before and stressing the word "loosely". Is your invention now because your stud A,—corresponding, that is,—

which loosely passes the flattened stud B′,—is your invention that it is tight?

MR. CLARK:—Your Honor please, with reference to——

THE COURT: I don't see why there isn't a little more intellectual frankness of the patent bar, candidly.

MR. CLARK: With reference to your Honor's suggestion that this was a recent thought of mine, you may remember that the testimony covered that point, your Honor.

THE COURT: Whether recent or not, as a matter of fact in your blade the stud is pretty loose. I don't know whether you describe that as loosely or not in the patent but it is pretty loose.

MR. CLARK: The Hartman thing, the central screw threaded thing in all these razors is not a positioning device at all, it is merely a clamp and passes loosely.

THE COURT: What do you mean? Yours passes loosely through. I mean I don't know what you mean by the word "loosely." But certainly there is a little play there.

MR. CLARK: Well, there has to be a little play.

THE COURT: There is no difference in your Gillette, the same as in your Gillette. Your central member is the same as in the Gillette razor, isn't it?

MR. CLARK: The central screw member, yes. But that doesn't perform a function of locating the blade. In the Gillette razor the fit is not intended to be tight there.

THE COURT: It isn't in yours either.

MR. CLARK: No, it isn't in any of them.

THE COURT: Then why make this elaborate argument to the effect that Hartman, because he had a loose

central member, was in some way differentiated from you?

MR. CLARK: The central member doesn't play any part in the invention that I am speaking of.

THE COURT: In any of them?

MR. CLARK: No.

THE COURT: Then why argue about it at all, which is what you are doing.

MR. CLARK: Because that is just the point, your Honor. It is these two outer members that play the part in the original blade.

THE COURT: They are the same in Hartman as in you.

MR. CLARK: They are the same in Hartman as in the original Gillette.

THE COURT: I don't see how.

MR. CLARK: In that they pass through and locate the blade and the other member of the holder.

THE COURT: So do yours.

MR. CLARK: No, your Honor.

THE COURT: Why *not*?

MR. CLARK: They don't locate the other member of the holder at all.

THE COURT: Well, they are broken off if that is what you mean, but they fit into the cap.

MR. CLARK: Well, not except that there is a hole for them to go into but they don't locate it in any sense.

THE COURT: What do you think locates it in your case?

MR. CLARK: I thought I had been trying to explain that, your Honor.

THE COURT: The four protuberances, don't they?

MR. CLARK: They locate the blade with reference to the cap and then another protuberance or pair of protuberances, as it is on the Goodwill razor, locates it with reference to the guard.

THE COURT: All right, that is the same thing, the protuberances are the same.

MR. CLARK: And the central clamping member has nothing to do with it.

THE COURT: All right, agree that it doesn't. In Hartman, Hartman had some protuberances on the guard which located it on the cap.

MR. CLARK: The same two that we have on here, and then he lacks entirely anything corresponding to the other protuberances.

THE COURT: What you mean are these four little things?

MR. CLARK: No, the single thing of Gaisman or the two similar things of the Goodwill, Gillette; Hartman doesn't have anything corresponding to that.

THE COURT: I don't see how you can say that.

MR. CLARK: Well, I think we can come to the conclusion that the central screw member——

THE COURT: I am not confused, I think you are.

MR. CLARK: I didn't say confused. I say we can come to the conclusion that the central screw threaded member did not act——

THE COURT: All right, stop talking about that. You have in addition to that two other protuberances in both razors, yours and Hartman's, and they are both on the guard and they both stick up through the cap.

MR. CLARK: Right.

THE COURT: Exactly what is the difference?

MR. CLARK: Well, the difference is he has only those two protuberances.

THE COURT: And you have the four little things and we have come around Robin Hood's barn to where we started from, which I was willing to concede in the beginning.

MR. CLARK: Very well. Then I guess we have accomplished what we wanted to accomplish.

THE COURT: Well, I accomplished it right away.

MR. CLARK: But the point that I wish to reiterate is that this produced, as your Honor realizes, a more accurate positioning of the blades.

THE COURT: I do realize it and I concede it. I concede that it is a difference, that it is an improvement, that it makes it fit more snugly, which is desirable. Now, the only thing that I am not now prepared to concede is that that is not a mechanical improvement but the touch of genius.

MR. CLARK: Yes, your Honor.

MR. PALMER: Apparently in plaintiff's counsel's discussion more thought was put onto the razor construction than to the blade but after all we are more concerned with the blade.

THE COURT: I don't want to be annoyed by your argument, I have stated your case in my poor, humble opinion better than you can, so don't waste my time and your own by irrelevant matters. If your blade infringes, I have no sympathy with your clients. I think they have behaved dishonorably and if I could possibly enjoin you I would. Is that plain?

MR. PALMER: Well, just——

THE COURT: Is it?

MR. PALMER: Yes, it is.

THE COURT: If not, I will make it plainer. I don't think the kind of people that your clients are are any asset to the business world, and it is very reluctantly that I declare this patent invalid. I am very sorry that I do it for the benefit of such people. If they are in the court room I hope they will take heed to those words. I suppose there is not much use saying it to their kind of mind because they probably don't see ethically on all fours with the average person and if I write an opinion, as I suppose I will in this case, I shall express myself with considerable freedom on that point.

MR. PALMER: May I speak with regard to the merits?

THE COURT: That is in my opinion one of the merits, not of the patent case but one of the merits of what has gone on.

MR. PALMER: Of the merits of the anticipations with regard to the structural and functional limitations. Claims 1 and 2 of the patent in suit——

THE COURT: You can speak about them, I don't know what is necessary to add that I don't know or that any other person of average intelligence wouldn't know at once.

MR. PALMER: Well, I just simply want to point out briefly that the Hartman blade is a key in the same sense that the plaintiff's blade is a key. Further in the Hartman patent we find——

THE COURT: As I say, you would have done better with this argument if you had a model of the Hartman patent here. However, go ahead.

MR. PALMER: We have positioning means on the guard for locating the blade and we also have posi-

tioning means on the blade for locating the cap. This is precisely what the Gaisman patent in suit accomplishes. Then again we have this condition to contend with and that is if Hartman today were manufacturing he would run into the spirit and terms and structure of the Gaisman claims in suit and it follows therefore that if Hartman does infringe, Hartman obviously is 100 per cent. anticipation against Gaisman. From another aspect so much stress has been placed on the idea that the Gaisman blade is a key. Well, I would just like to know where the Gaisman patent——

THE COURT: This isn't a debating society, don't look at counsel.

MR. PALMER: Well, there is nothing at all in the description of Gaisman that he has used it as a key or has used it in the sense that plaintiff is trying to prove. This is simply an after thought and it has no basis in the present discussion. It is new matter for it is not specified in the original Gaisman patent.

I would also like to call the Court's attention to the fact that the blade claims, particularly with respect to claim 1 of Gaisman, have been declared invalid by the Canadian court.

THE COURT: Let me see the opinion.

MR. PALMER: I have a citation of that.

THE COURT: Well, give it. You ought to have brought the case here.

MR. PALMER: Gillette Safety Razor Company of Canada, Ltd. v. Pal. Blade Company, 193 Canadian Reports, 142.

THE COURT: 193 Canadian Reports; I don't think that is a report of Canada. Have you got that right?

MR. PALMER: Well, that is the best identification I have of it. I have looked around for it and that is the best I can do.

THE COURT: You had better send for the proper citation of that because I don't think that is the proper citation. They have courts just like English courts and I think they have reports just like English reports. You haven't got a copy of it, have you?

MR. PALMER: No, I haven't.

THE COURT: Where did you get the citation?

MR. PALMER: In reviewing a brief that was submitted to the Supreme Court of the United States in the case of Gillette v. Hawley Hardware.

THE COURT: Is that an appeal from Judge Manton?

MR. PALMER: Yes.

THE COURT: Where is that, has that been reported yet?

MR. PALMER: I have no citation on that.

MR. CLARK: Certiorari was denied, your Honor.

THE COURT: It was denied?

MR. CLARK: Yes.

MR. PALMER: But I was able to find that citation in a brief submitted by Mr. Kerr of Cooper, Kerr & Dunham.

THE COURT: Send me a copy of that brief.

MR. PALMER: I would be glad to.

Further in support of defendant's position he relies on the case of the American Safety Razor Company v. Frings Bros., decided in the Third Circuit.

THE COURT: What is the citation?

MR. PALMER: 56 Fed. (2d) 449.

THE COURT: Don't tell me anything that is in the case until I get it.

MR. PALMER: And 62 Fed.—that case was appealed, your Honor.

THE COURT: To the Supreme Court?

MR. PALMER: No, to the Court of Appeals of this circuit. 62 Fed. (2d) 416.

THE COURT: Wait a minute, I will get both those cases. I think that is the case Judge Haight had reference to.

MR. PALMER: Judge Buffington handed down the decision.

THE COURT: We will examine that with care, just pause in your argument.

MR. CLARK: I would like to note while we have this pause that the District Court of Connecticut in this Hawley case held this patent valid and infringed and Judge Manton's decision held it not infringed.

THE COURT: What is the other one in 62 Federal?

MR. PALMER: 62 Federal.

THE COURT: Hold on a minute till I look at this. They used the term here "cover and saddle" instead of "guard and cap." Which is correct?

MR. CLARK: Guard and cap are the terms, I think, that the Gillette Company usually uses. I think this was a different type of razor, not a Gillette type, although I am not familiar with the details.

THE COURT: Yes, that is Judge Haight's case, he was counsel. Judge Buffington says: "We note that the safety razor art is a thoroughly occupied field. Originally novel and radical in character and for years the subject of patentable novelty and the source of large profits, the field has been thoroughly developed, and as a result thereof and the employment of skilled engineering in its progress, improvement and develop-

ment are naturally to be looked for. Moreover, courts in dealing with an art, originally pioneer in origin, must carefully scrutinize the constant efforts of those who have enjoyed a profitable patent monopoly to lengthen such monopoly by patents for non-inventive changes. Bearing this in mind, we inquire whether the blade of Behrman was really inventive in character or such an adaption or minor change as would naturally follow in the wake of such a threshed out field as the successful safety razor one had enjoyed."

All right, I have read those cases. Proceed. I concur in what Judge Buffington said, however.

MR. PALMER: Well, the defendant rests.

THE COURT: Well, my view of the matter is that I am sorry in view of what I think of the defendants that I have to decide in their favor. I don't think they deserve a decision. If they show any disposition to deceive the public the court is open to an attempt to redress that deceit and prevent them. However, I think that the improvement of the blade disclosed by the Gaisman patent is not inventive. I question really whether the change from the protuberances coming down from the cap to the protuberances up from the guard, such as disclosed in both the Hartman and Gaisman patents, was a patentable improvement. It is just another example, as I have already had one this morning, of this mania on the part of the Patent Office to grant patents for every little change, no matter how small. Of course, in the case of the safety razor art, undoubtedly the mania has been stimulated by the fact that the original patents have expired and the principal company manufacturing razor blades wants to preserve, of course, its monopoly, foolishly in my opinion. It does not have to rely upon superior workmanship and allows inferior cost of production. In the case of the Gaisman patent ap-

parently the only real advance over Hartman are these four minute protuberances, one at each corner of the cap fitting into corresponding niches in the razor blade. I think they do probably cause the blade to fit more closely. I would suggest that if you had run, for instance, a series of little protuberances down the length of the cap that that would also make the blade fit more closely; maybe that will be the next thing patented. However, I don't believe that the slight advance in the art indicates any touch of genius, but seems to me the kind of mechanical improvement which would suggest itself to our old friend, the ordinary mechanic, so I will dismiss the bill. I might say in doing so I call again attention to what Judge Buffington said in American Safety Razor Corporation v. Frings, 62 Fed. (2d) 470, and certainly nobody could accuse Judge Buffington of taking a hostile attitude towards patents. You have got an order?

THE COURT: Don't forget, you are to introduce in evidence to be used on appeal a true model of this Hartman razor and if it isn't agreed that it is true I will pass on it myself.

MR. PALMER: I will have one made.

THE COURT: Show it to Mr. Clark. If he doesn't agree that it is a fair model, bring it before me.

MR. PALMER: I think we can get together on that.

MR. CLARK: Thank you very much, your Honor.

THE COURT: Let me know about your appeal, Mr. Clark, because I will write an opinion amplifying and perhaps polishing up a little what I have said.

MR. CLARK: If we decide to take an appeal.

THE COURT: Yes, but if you don't appeal I think I will just let this be reported as an oral opinion.

MR. CLARK: We will advise you promptly, your Honor—I am advised by my client that I can advise you now that we will appeal.

THE COURT: You didn't have to advise me, I knew he would.

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Proceedings before Hon. William Clark, J., at the Lefcourt Building, Newark, New Jersey, on Wednesday, April 24, 1935.

THE COURT: What is the difficulty, gentlemen?

MR. ASHTON: The difficulty, your Honor, is this, it has to do with the models.

THE COURT: You didn't steal that off my desk, did you, Mr. Ashton?

MR. ASHTON: No, sir; you have not had this, as to which you asked Mr. Palmer, counsel for the defendant, to submit a model, and if we could not agree then the matter should be brought to your attention. What happened was this: Mr. Palmer prepared a model and we did likewise, and those models were submitted to each other, that is, each had a chance to examine them, and I understood that we had agreed that both models should go in. We made a triple sized model of the razor because we thought it was clearer to understand.

THE COURT: I should think so.

MR. ASHTON: And we had agreed, as I understood it, that those models go in. Subsequently and after I had loaned Mr. Palmer our model he advised me not only that he wanted to make some changes in his but he has actually made them, and that he now will not agree to our model going in also, but he also wants to submit something to go with our model, which, namely, is another blade to be fitted in our model. I told him

at our last meeting that I was agreeable to his model if he would agree to ours.

THE COURT: I should think offhand it was fairer for both of them to go in, and let the Court of Appeals have the benefit of both of them.

MR. ASHTON: He said he would not make that agreement unless he could submit a blade for our model. The whole matter turns, so far as we are concerned, on what we think is a fair interpretation of the Hartman patent, and we say further that Mr. Palmer has asked to submit a blade which would fit this razor very tightly, which is absolutely contrary to what the patent says.

THE COURT: Let me see it a minute. Is that your model?

MR. ASHTON: That is our model.

THE COURT: No, I mean yours, Mr. Palmer.

MR. PALMER: I have a model here.

THE COURT: Of course, that ought to be triple size.

MR. PALMER: No, this is the normal size.

THE COURT: No, but I don't see much point in a model that isn't triple size.

MR. ASHTON: I don't know whether any changes have been made in Mr. Palmer's model since we saw it the other day. If there have been, I wish he would state what they are.

I call your Honor's attention to the statement in the Hartman patent which has to do with this slot. The patent states that the razor blade is formed with the central slot A through which loosely passes the flattened stud B, and we have made that of the dimensions, multiplied by three because it is triple size, of the center pin in the original Gillette razor. The al-

lowance there was twenty one-thousandths of an inch, so that is three times that or sixty one-thousandths.

THE COURT: Let me see yours. Mr. Ashton, why wasn't the Hartman patent in that Connecticut litigation?

MR. ASHTON: It has nothing to do with that invention, your Honor. If I understand the Thompson patent correctly there, the problem was——

THE COURT: The Gaisman patent was in the Connecticut suit.

MR. ASHTON: The Gaisman patent was put in, not the Gaisman U. S. patent, but the Gaisman Australian patent was put in because it showed a short blade which would miss the burrs on the corners of the cap, that is, they were advocating that in that Australian Gaisman patent. The blade was so short as it was shown in the drawings that it would miss the burrs on the cap, which was the problem involved in the invention there.

THE COURT: I understood the Connecticut suit had both patents.

MR. ASHTON: That was a separate suit on the Gaisman patent, you will remember, in which the Court of Appeals held that the Gaisman patent was not infringed. That was a previous litigation which involved an entirely different Thompson patent. That was the patent on the razor itself, whereas the one in the record that I sent you the other day was the Thompson patent on the blade.

THE COURT: The only thing is, I have examined all those records to try to straighten the thing out. It seemed to me that the Court of Appeals in New York said flatly that these little nicks were not invention.

MR. ASHTON: The Court of Appeals held in the case of Gillette v. Standard on the razor patent of Thompson that it did not involve invention to cut out the corners of the blade to miss the burrs which formed on the cap by reason of the cap's being dropped in——

THE COURT: And fit them in those little lugs.

MR. ASHTON: No, there were no lugs on the cap of the razor to which the Thompson patent, last passed upon by the Court of Appeals, relates—it was the old style Gillette razor which the record showed was subject to damage in use. The lugs were involved in the earlier litigation. What happened there—in order to clarify it for your Honor I think I should state——

THE COURT: It is very confusing.

MR. ASHTON: Well, it is very simple, as a matter of fact. What happened was this: Thompson found that the burrs on the caps were the thing that were causing all these complaints to come in to the Gillette Company, so he cut out the corners of the blades. That was the subject matter of the patent last passed upon by the Court of Appeals; but at the same time that he made the invention of cutting out the corners, he put lugs on the cap and those lugs prevented the cap from being damaged in the future, but the invention of the blade applied to all the razors on the market that were in use. There were literally about fifty million razors in use and this blade, when it was supplied, actually corrected the trouble with those razors; it made the burrs which had been formed by dropping miss the corners of the blade, which was something that nobody had found for years. They held it did not involve invention but it had nothing to do with burrs originally formed or projections——

THE COURT: I may be a little stupid, but what was the difference between Thompson and Gaisman?

MR. ASHTON: Gaisman was using two means of positioning the blade, one means was providing on the guard——

THE COURT: The lugs.

MR. ASHTON: No, on the guard he had a central projection.

THE COURT: Oh, you mean that part, yes.

MR. ASHTON: On the cap he put projections, not at the corners as in the Thompson patent because they are shown to be back a way, but he put those projections on the cap in order to position the blade with respect to the cap. The invention of the Gaisman patent is putting positioning means on the cap and positioning means on the guard and using the blade as a key between those two. The projections on the cap position the blade with respect to the cap; the projections on the guard position the blade with respect to the guard. In the old Gillette razor it was merely the two pins that positioned all three members.

THE COURT: Well, I asked your distinguished associate whether it wasn't the fact that what he claimed was the invention were those four little projections, one at each corner—correct?

MR. ASHTON: You asked him that.

THE COURT: And he said it was.

MR. ASHTON: No, he did not, if I may——

THE COURT: I reread the record again just the other day.

MR. ASHTON: What you got Mr. Clark to do, if I understand the record correctly, was you asked him what over and above what was shown in the Hartman patent, namely, the little lugs on the springs which served only to position the blade with respect to the

guard here and then to position the cap with respect to the blade and guard—you asked him, assuming that they correspond to the projections on the guard of the Gaisman razor—if the projections on the cap were not the same as in this razor here, which they are not at all. This has only one positioning means.

THE COURT: You see, he cited——

MR. ASHTON: Gaisman has two.

THE COURT: He cited to me as the controlling authority that case in New York—Brooklyn, I guess it was—Connecticut, the one that has just been reversed.

MR. ASHTON: Well, he didn't cite it as an authority for so holding, if I remember correctly.

THE COURT: Yes, he did.

MR. ASHTON: You asked him about that case, did you not?

THE COURT: No, I never heard of it before. He gave it to me and said that I should follow the District Judge in that case and then, of course, afterwards he was reversed.

MR. ASHTON: That case has nothing to do with this case, and if I understand the record correctly, your Honor, he was not intending to cite that as a precedent for any decision in this case because the facts and the patent involved and everything else were entirely different.

THE COURT: Well, as I say, I just re-read the record the other day because he used such terribly involved language that it was difficult for me to make out what he did mean.

MR. ASHTON: Well, the fact is that the invention of the Gaisman patent has two positioning means, one on the cap and one on the guard, and by reason of

that you are able to position the blade more accurately than in the old style razor.

THE COURT: What do you call positioning means?

MR. ASHTON: The positioning means in Gaisman are the four lugs on the cap and the lug on the guard. There are two entirely independent positioning means and the blade.

THE COURT: You say that Thompson didn't have those?

MR. ASHTON: No. In the Thompson razor he was merely cutting out the corners in order to miss the burrs which formed on the cap or which he put there deliberately. The old means, the same as in the original Gillette razor that was on the market from 1900, were used to position the cap, guard and blade as one unit. In Gaisman the blade is the key, the thing that positions the guard and cap. There is no engagement between the blade in Gaisman except through the lugs on the cap and the projection on the guard except——

THE COURT: I am asking these questions because I am writing my opinion and I want to put it fairly and squarely up to the Court of Appeals. That is the reason I am asking.

MR. ASHTON: I wasn't certain that your Honor had understood——

THE COURT: Mr. Clark insisted on using such curiously involved language that if you read the record I cannot tell exactly what he did mean.

MR. ASHTON: Well, the one thing that I wasn't certain that you understood during the trial was just what I have been stating here now, that in Gaisman there are two separate and entirely independent positioning means, one being the four lugs on the corners of the cap and the other the extension on the guard.

THE COURT: I did understand that the four lugs were contended for and I did not think and do not think that they involve invention, but I thought that Thompson also had those lugs. Then I misunderstood if it is not so.

MR. ASHTON: No, the Thompson lugs do not perform the function that the lugs do in——

THE COURT: Were they there at all?

MR. ASHTON: They were there solely as a protecting means for the corners of the cap.

THE COURT: But they were there?

MR. ASHTON: I say they did not perform the function of these.

THE COURT: You mean didn't they fit in to little nicks in the blade?

MR. ASHTON: They fitted into the corners of the blade but not for a positioning means. There was an additional clearance there.

THE COURT: Will you bring me the Thompson razor?

MR. ASHTON: I haven't one with me. I can make it very clear to your Honor. I will be glad to bring the razor. Thompson's idea had nothing to do with positioning the blade. I think I can make it clear from the model of the original Gillette. In the original Gillette the only thing that had anything to do with positioning the blade in the razor, and that is the critical thing—the Gaisman patent would not have been of interest to anyone if it wasn't because it got the more accurate positioning which you, during the trial, stated you believed to be the case—it was more accurate positioning. Now, in the original Gillette razor there were two pins, these two things here. Now, they are the only means of positioning the blade in

the razor and they perform a triple function. They position the blade, the cap and the guard all as one and they go right through the blade and that positioning is between the hole in the blade, the hole in the guard and the stud itself. Now, that is a much less accurate positioning than you get in Gaisman because Gaisman positions his blade first only with respect to the cap by the four lugs that are on the corner, but then starting all over again positions it again accurately, the blade with respect to the guard, by the accurate centrally disposed projection that is on the guard. So he has got two means of positioning the blade accurately. What he does is reduce the error about 35 per cent. in the——

THE COURT: But, Mr. Ashton, you say that Thompson did not intend it for positioning purposes?

MR. ASHTON: No, he didn't have any means on the guard to co-operate with it. It is in combination. They don't position the blade accurately in the razor.

THE COURT: You say although the lugs are there they don't position it because there aren't other means?

MR. ASHTON: They position it not at all accurately. They are not depended upon to position it at all and they have absolutely no function whatever in positioning the blade with respect to the guard.

THE COURT: Well, now, I will tell you what you do: suppose you bring me a Thompson razor blade.

MR. ASHTON: I will be very glad to. It is not a positioning means.

THE COURT: Now, how about this particular thing? Where is your model, Mr. Palmer?

MR. PALMER: This is mine. The point of contention there is with regard to the fit of the notch of the blade with respect to the sides of the stud.

THE COURT: Are there any dimensions in the patent?

MR. PALMER: There are no dimensions, although in Fig. 2 and 4 of Hartman we find that the sides of the notch, central notch, is almost against the sides of the depending stud.

THE COURT: Well, I don't know whether it is or not.

MR. ASHTON: The specification says "loosely".

MR. PALMER: The drawings indicate it is fairly close.

THE COURT: That seems a bit trivial.

MR. PALMER: I thought so too.

THE COURT: I mean on your part.

MR. ASHTON: Have you the blade here? The point we make here—this is not the blade that Mr. Palmer submitted originally. What they are doing, according to our position, is to make this lug a tightly fitting thing, whereupon they are making it serve the same purpose as the corners of Gaisman's cap, which is not what it is intended to be at all. It says that it is "loosely fitted." Those are the things that form the sole positioning means in this razor. This is the cap that he submitted before and it is probably satisfactory. We were quite agreeable to the way he submitted it originally.

THE COURT: What is the matter with this? I think this is all right, Mr. Palmer.

MR. PALMER: No—it might be all right but if that is satisfactory I really think this is in the same sense satisfactory.

THE COURT: What is that?

MR. PALMER: This is the blade that I duplicated.

MR. ASHTON: It is absolutely contrary to the specifications.

MR. PALMER: No, I don't agree to that.

THE COURT: Where is the word "loosely"?

MR. ASHTON: Here is where it says "The razor blade is formed with a central slot A through which loosely passes the flattened stud B."

MR. PALMER: Well, the expression "loose" is relative, your Honor, but we must go a little further and consider the words of the specification in the light of the drawings because both teach.

THE COURT: You cannot tell from the drawings unless the dimensions are given.

MR. ASHTON: They are not intended to be anything but diagrammatic.

THE COURT: No.

MR. PALMER: Well, we can see at a glance that the blade here almost touches the side of the stud.

THE COURT: I tell you what you can do, you can introduce your thing, they can introduce theirs, and you can tell the Court what the dispute is about if they want to hear it.

MR. ASHTON: I am not objecting to their razor going in with the blade they originally submitted—they have now made a new blade—but I strenuously object to their offering a blade for our razor. The Court has at no time suggested that they should offer a blade for our razor and put one in which is absolutely a tight fit contrary to the specification. I strenuously object to that. I have submitted the razor and I have a witness here who is prepared to testify and back up this model completely on good razor practice, and we have interpreted the patent as meaning what it says, a loose fit, and there is no reason at all why Mr.

Palmer should have the right to submit a blade for our razor which is obviously contrary to the specifications, and we strenuously object to that, your Honor.

MR. PALMER: Well, as I recall the Court's ruling——

THE COURT: I just said I think it would be helpful to the Court of Appeals to have it.

MR. ASHTON: I see no reason why, if they desire to put in their model, they may not do so, provided I can put in my model and my blade.

THE COURT: So be it!

MR. ASHTON: I understand then that the blade which Mr. Palmer is proposing is the blade which he originally submitted to me for his razor and that the blade which he has proposed to be offered for our razor is excluded. Is that correct?

MR. PALMER: Is included.

MR. ASHTON: Is excluded.

THE COURT: No, you cannot offer the blade for their razor. Of course, it is excluded. You can submit your model or any model that you make and they can submit their model, but you cannot submit a part exhibit for their model; that is obvious.

MR. PALMER: Well, as I recall the Court's ruling on that it is that you requested that we make a model and not the other side.

THE COURT: I don't remember that. I haven't got the record here.

MR. PALMER: Well, I have the record here.

THE COURT: Let me see it. But anyway it is not fair.

MR. ASHTON: As to that, your Honor, we, as I told you when I first began to speak, went ahead and made

a model so as to be sure that one would be made correctly, and we agreed with Mr. Palmer that both models should go in, and subsequently to that he has asked to change the whole thing. I have a witness here that is prepared——

THE COURT: It doesn't seem worth while really spending much time on it.

MR. PALMER: Well, I think that our blade is in accordance with the Hartman construction and intent.

THE COURT: That is what you think. Mr. Ashton thinks differently. Now, let the Court decide it.

MR. PALMER: Well, then, may I——

THE COURT: No, you can make a razor of your own but you cannot put your blade on their model. If you want to make a model of your own I think that is your privilege.

MR. PALMER: Well, we have made a model but we proved that the same function exists although we used this blade.

THE COURT: Make a model of that size then.

MR. PALMER: I also would like to put in this particular cap which has straight sides for the stud and in place of the curved sides or slightly arcuate. Now, these sides of this stud are perfectly straight.

MR. ASHTON: I have a witness——

THE COURT: I don't think we need any witnesses. We will put in both models.

MR. ASHTON: Of course, we are in a position of not being able to criticize the models.

THE COURT: It is a question of interpretation, isn't it, by the Court?

MR. ASHTON: Well, will you excuse me just a moment? . . . I ask that the plaintiff's model, triple

size model, of the Hartman patent be marked in evidence as Plaintiff's Exhibit P-11 and that the blade which accompanies the model be marked Exhibit P-12. I want to record some of objections to the defendant's offer when made.

(Hartman model received and marked Exhibit P-11.)

(Blade received and marked Exhibit P-12.)

THE COURT: You ought to record some objections to those, Mr. Palmer, I should think.

MR. PALMER: I am going to object to that portion of the model which has to do with the blade, on the ground that it is slightly at variance with the Hartman patent.

THE COURT: Better say in what respect.

MR. PALMER: In the respect that the opening of the blade is slightly exaggerated as to size relative to the contour of the depending stud from the cap.

THE COURT: Now, make your offer.

MR. PALMER: I offer the model according to the Hartman disclosure.

THE COURT: You had better amend that and say according to your interpretation of the Hartman disclosure.

MR. PALMER: —according to defendant's interpretation of the Hartman disclosure, in evidence as Defendant's Exhibit 5, which comprises a razor and a blade clamped between parts thereof; in other words, the model as is now presented is offered to the Court in evidence.

MR. ASHTON: I object to the receipt of this model upon the grounds that it does not conform to the disclosure of the Hartman patent, which states that the

blade fits loosely the stud on the cap and I call the Court's attention to the fact that the cap which now forms a part of Defendant's Exhibit 5 is not the cap which was originally submitted by defendant's counsel and which was agreed to by plaintiff's counsel.

MR. PALMER: May I offer an objection to that?

THE COURT: To what?

MR. PALMER: Because we are now coming in here before the Court each presenting their model.

THE COURT: Well, my ruling is that both models be admitted in order that the learned Court of Appeals may determine for themselves by looking at both models and reading the Hartman patent which in their opinion is the more accurate model. Both sides may have their exception.

(Plaintiff's counsel prays an exception to the admission of defendant's exhibit, which is hereby allowed and sealed accordingly.)

(Sealed)

(Defendant's counsel prays an exception to the admission of plaintiff's exhibit, which is hereby allowed and sealed accordingly.)

(Sealed)

MR. PALMER: And may I just add this: I desire to offer this blade in evidence as Defendant's Exhibit 6, this blade being constructed according to the defendant's interpretation——

THE COURT: Is that blade any different from the smaller blade in dimensions except that it is larger? Is it in different proportions?

MR. PALMER: It is in accordance with the Hartman patent.

THE COURT: That is argumentative. Is it any different from the smaller blade that has already been

offered except that it is three times the size—the proportions are the same, aren't they?

MR. PALMER: The proportions are the same.

THE COURT: That being so, what is the purpose of offering it?

MR. PALMER: To show that it operates in the large razor.

THE COURT: If you want to show that you must submit your own model.

MR. PALMER: Well, may I have an exception to that ruling?

THE COURT: Yes, you may.

(Defendant's counsel prays an exception, which is hereby allowed and sealed accordingly.)

(Sealed)

MR. ASHTON: I may state that we are prepared to call a witness to testify with respect to the inaccuracy of defendant's model, but I understand that the Court suggested that a comparison can be made directly from the models by the Court of Appeals.

THE COURT: I think so; don't you, Mr. Ashton? If you want to call the witness I haven't any objection to it.

MR. ASHTON: Well, in view of the discussion on the subject, we will omit doing so. I will bring the Thompson model.

THE COURT: Just send it out by messenger, Mr. Ashton; don't bother coming out with it.

Argument before Hon. William Clark, Judge, at the Lefcourt Building, Newark, New Jersey, on Monday, June 10, 1935.

MR. ASHTON: When we were here the other day I did not expect it would be necessary to come back. About three weeks after we were here we were about to arrange for sending the record to the Court of Appeals. Mr. Palmer told me that he had consulted some one and wanted to identify in the record the blade which you excluded from the record at our last hearing, so that that blade would go up as a physical exhibit, and I strenuously objected to that, your Honor having excluded it during the hearing that we had here. The exact reference which he wanted to put in would identify it and make it necessary to take it up as a physical exhibit. It was the blade, you will recall, for our model, not for his own. You said that he had no right to do that. I have submitted an order for approval of the record, and he objects I assume because I won't agree to put that reference in.

THE COURT: Mr. Palmer, do you represent the receivers of this company?

MR. PALMER: Pardon me?

THE COURT: Do you represent the receivers?

MR. PALMER: There are no receivers in this suit. I represent the Essex Razor Blade Corporation.

THE COURT: Well, I now know a little more about them. I think they are in receivership, aren't they?

MR. PALMER: As far as I know, they are not.

THE COURT: Isn't this the same one that I have just had the litigation about?

THE CLERK: That was the Clark.

THE COURT: Is that Mr. Donovan's company?

MR. PALMER: At one time; Mr. Donovan was also identified with Otto Roth Company and Gillette Safety Razor Company.

THE COURT: I know about Mr. Donovan. He was a witness at some length. Well, I think I would like to know a little more about your connection with this company. Is Mr. Harlow the president of your company

MR. PALMER: That is correct. I am the attorney in this patent suit for the Essex Razor Blade Corporation.

THE COURT: Who retained you, Mr. Harlow?

MR. PALMER: Mr. Harlow, Mr. Berse and Mr. Donovan.

THE COURT: How long ago was that?

MR. PALMER: If I recall distinctly, it was February of 1934 on this case.

THE COURT: You say that company is still operating?

MR. PALMER: Yes, they are, by all means.

THE COURT: What is the matter with this record?

MR. PALMER: Well, if your Honor will recall that during the——

THE COURT: I thought I had been very patient with you, Mr. Palmer. You make me regret since that I decided the case in your favor, because you don't seem to me to be willing to be fair with your opponents.

MR. PALMER: I am really quite fair, your Honor, because——

THE COURT: I don't think so.

MR. PALMER: Because the blade, the large blade on the Hartman patent which they offered in evidence and on which no testimony has been taken, while it

should go in, I do believe that my large blade for their razor should at least be identified.

THE COURT: I am advising you, Mr. Palmer, that your present tactics are apt to prejudice any judge, apt to prejudice the judges of the Court of Appeals and imperil your victory. I will sign Mr. Ashton's order. You may have an exception.

(Defendant's counsel prays an exception, which is hereby allowed and sealed accordingly.)
(Sealed)

MR. PALMER: May I just have this marked?

THE COURT: You may have an exception.

(Defendant's counsel prays an exception, which is hereby allowed and sealed accordingly.)
(Sealed)

MR. PALMER: May I at least request that this exhibit be offered for identification?

MR. ASHTON: That's the whole purpose of the motion.

THE COURT: I am just telling you that I decided the case in your favor because I thought the patent was not valid, but you are going to imperil your own decision in this way.

**PLAINTIFF'S EXHIBIT NO. 1.**

**Plaintiff's Razor Blade.**

(Physical Exhibit.)

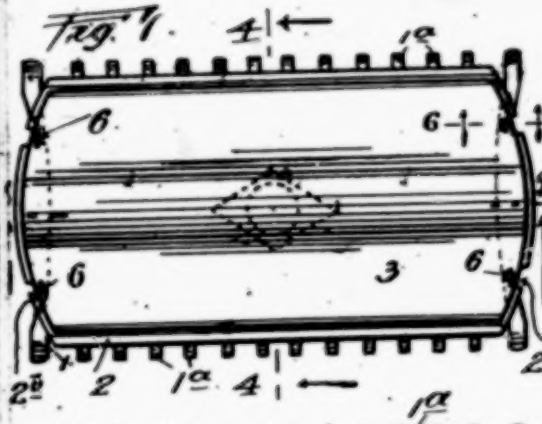
June 28, 1927.

H. J. GAISMAN

SAFETY RAZOR

Filed Nov. 21, 1922

Fig. 1



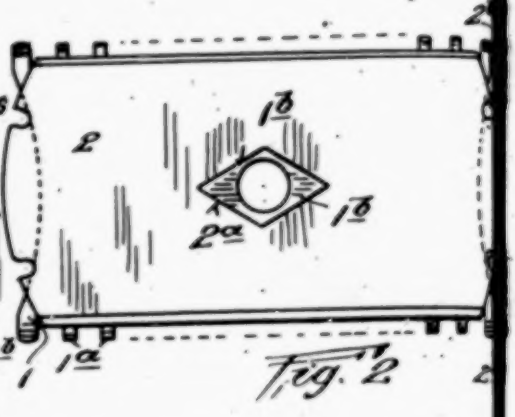




Fig. 2

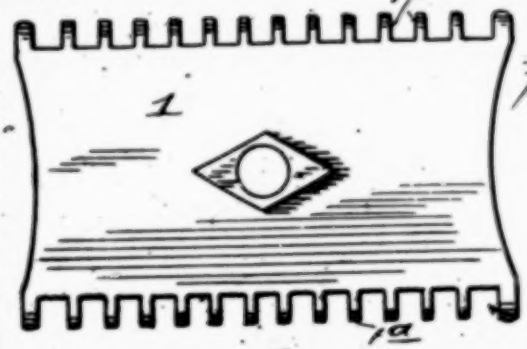



Fig. 3

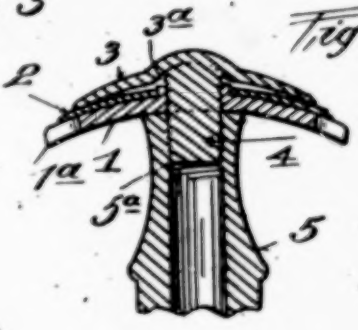



Fig. 4

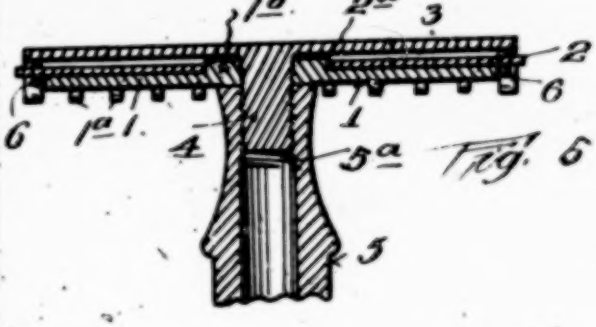



Fig. 6

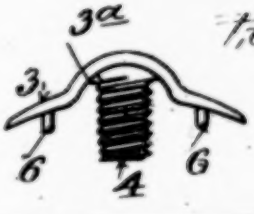



Fig. 9

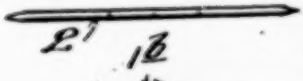



Fig. 8

Fig. 7

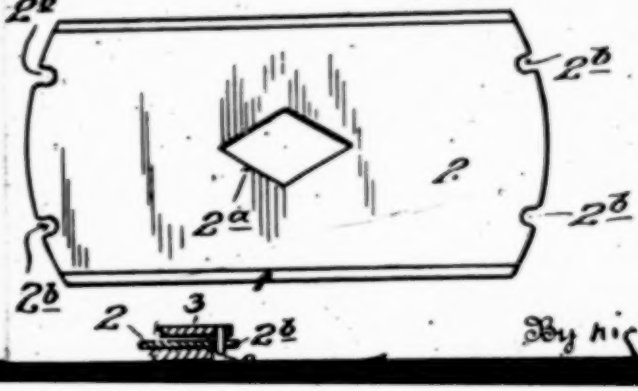


Fig. 1

Inventor

Henry J. Gaisman

By his Attorney

Patented June 28, 1927. 1,633,739

# UNITED STATES PATENT OFFICE.

HENRY J. GAISMAN, OF NEW YORK, N. Y.

## SAFETY RAZOR.

Application filed November 21, 1923. Serial No. 676,378.

My invention relates to safety razors and is particularly applicable to the class of safety razors comprising a guard, a backing and a thin flexible blade clamped between the guard and the backing to retain the cutting edge of the blade in shaving relation to the guard teeth. In the class of razors described it has been customary, so far as I am aware, to provide the backing member with pins that project through holes in the blade and into holes in the guard member, whereby the blade and the backing are retained from rotation on the guard by the cooperation of said pins with the guard and the clamping of the blade between the guard member and the backing member, so that the blade performs no function in retaining any of said parts with relation one to another.

The object of my invention is to provide a safety razor wherein a blade will cooperate with a guard member to retain the blade in shaving relation thereto and the blade will also cooperate with a backing member to retain the latter in proper relation to the blade for shaving purposes, so that the position of the backing member with regard to the guard member is maintained by the blade and not by the cooperation of said members together in the well known manner I have described above.

In carrying out my invention I provide a guard member and a blade having cooperative means to retain the blade in shaving position on the guard, a backing member for the blade, means cooperative between the blade and the backing member whereby the blade retains the backing member in operative relation to the blade and the guard, and means to cause the guard member and backing member to clamp the blade therebetween.

My invention also comprises novel details of improvement that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part hereof, wherein

Fig. 5 is a longitudinal section on line 5, 5 in Fig. 1;

Fig. 6 is a detail section on line 6, 6 in Fig. 1;

Fig. 7 is a plan view of the blade;

Fig. 8 is an edge view of the blade;

Fig. 9 is a detail end view of the backing member, and

Fig. 10 is a detail end view illustrating the guard member.

Similar numerals of reference indicate corresponding parts in the several views.

The guard member is indicated at 1, the blade is indicated at 2, and at 3 is a backing member, so organized that the blade may be clamped between said members. The guard member is shown of the variety having guard teeth $1^a$ on opposite sides along which the cutting edges of the blade may extend in an ordinary way for shaving. Any suitable means may be provided for causing the blade to be clamped between the guard member and the backing member. In the example illustrated the backing member 3 is provided with a threaded projection 4 adapted to pass through a centrally disposed hole in the guard member to receive the internal portion $5^a$ of a suitable handle 5 to clamp the parts together for shaving. The blade is provided with a substantially centrally disposed opening $2^a$ through which the projection 4 of the backing member may pass when the blade is between the members 1 and 3. Heretofore, so far as I am aware, the opening in the blade for the projection from the backing for clamping the parts together has been circular so that reliance was had upon spaced pins projecting from the backing to pass through spaced holes in the blade and into holes in the guard member to keep the blade and backing in position on the guard member. In accordance with my invention I provide cooperative means between the blade and the guard member to keep the blade from rotat-

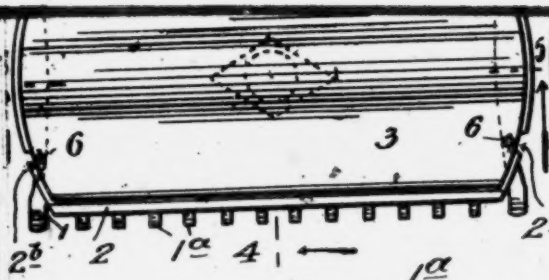
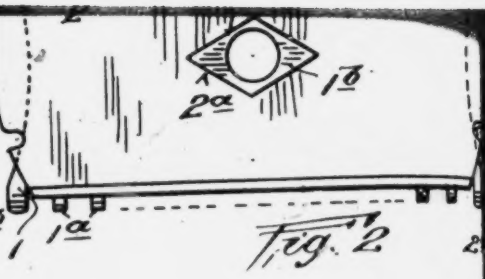



Fig. 2



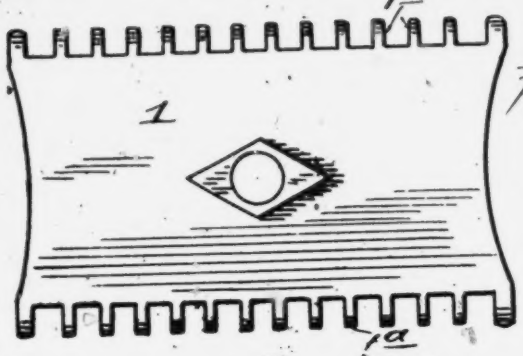




Fig. 3

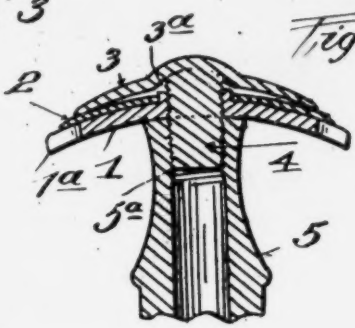



Fig. 4

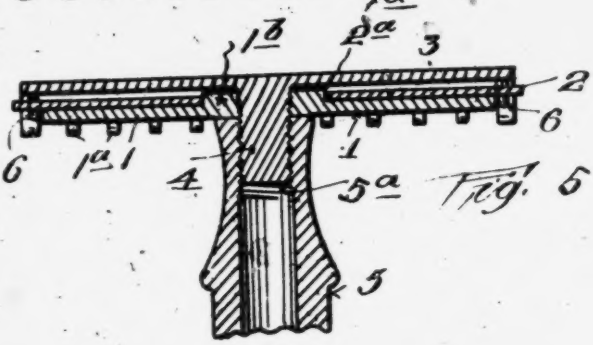



Fig. 5

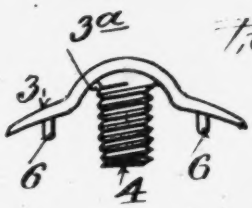



Fig. 9

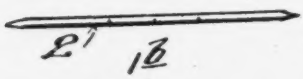
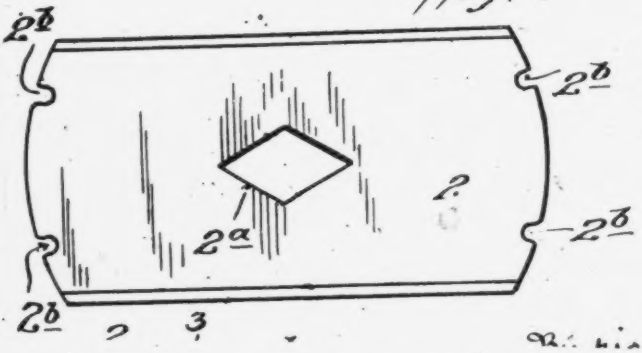



Fig. 8

Fig. 7



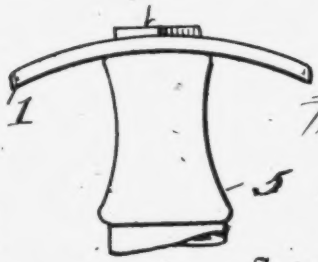




Fig. 1

Inventor
Henry J. Caism

Attorneys

# SAFETY RAZOR.

Application filed November 21, 1923. Serial No. 675,378.

My invention relates to safety razors and is particularly applicable to the class of safety razors comprising a guard, a backing and a thin flexible blade clamped between the guard and the backing to retain the cutting edge of the blade in shaving relation to the guard teeth. In the class of razors described it has been customary, so far as I am aware, to provide the backing member with pins that project through holes in the blade and into holes in the guard member, whereby the blade and the backing are retained from rotation on the guard by the cooperation of said pins with the guard and the clamping of the blade between the guard member and the backing member, so that the blade performs no function in retaining any of said parts with relation one to another.

The object of my invention is to provide a safety razor wherein a blade will cooperate with a guard member to retain the blade in shaving relation thereto and the blade will also cooperate with a backing member to retain the latter in proper relation to the blade for shaving purposes, so that the position of the backing member with regard to the guard member is maintained by the blade and not by the cooperation of said members together in the well known manner I have described above.

In carrying out my invention I provide a guard member and a blade having cooperative means to retain the blade in shaving position on the guard, a backing member for the blade, means cooperative between the blade and the backing member whereby the blade retains the backing member in operative relation to the blade and the guard, and means to cause the guard member and backing member to clamp the blade therebetween.

My invention also comprises novel details of improvement that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part hereof, wherein,

Fig. 1 is a plan view of a safety razor embodying my invention;

Fig. 2 is a similar view, the backing member being removed;

Fig. 3 is a plan view of the guard member;

Fig. 4 is a cross section on line 4, 4 in Fig. 1;

Fig. 5 is a longitudinal section on line 5, 5 in Fig. 1;

Fig. 6 is a detail section on line 6, 6 in Fig. 1;

Fig. 7 is a plan view of the blade;

Fig. 8 is an edge view of the blade;

Fig. 9 is a detail end view of the backing member, and

Fig. 10 is a detail end view illustrating the guard member.

Similar numerals of reference indicate corresponding parts in the several views.

The guard member is indicated at 1, the blade is indicated at 2, and at 3 is a backing member, so organized that the blade may be clamped between said members. The guard member is shown of the variety having guard teeth $1^a$ on opposite sides along which the cutting edges of the blade may extend in an ordinary way for shaving. Any suitable means may be provided for causing the blade to be clamped between the guard member and the backing member. In the example illustrated the backing member 3 is provided with a threaded projection 4 adapted to pass through a centrally disposed hole in the guard member to receive the internal portion $5^a$ of a suitable handle 5 to clamp the parts together for shaving. The blade is provided with a substantially centrally disposed opening $2^a$ through which the projection 4 of the backing member may pass when the blade is between the members 1 and 3. Heretofore, so far as I am aware, the opening in the blade for the projection from the backing for clamping the parts together has been circular so that reliance was had upon spaced pins projecting from the backing to pass through spaced holes in the blade and into holes in the guard member to keep the blade and backing in position on the guard member. In accordance with my invention I provide cooperative means between the blade and the guard member to keep the blade from rotating on said member. For such purpose I provide a projection $1^b$ on the blade side of the guard member adapted to enter an opening $2^a$ in the blade. By preference I make the opening $2^a$ in the blade of non-circular shape, preferably having straight sides, the opening $2^a$ in the drawing being shown in so-called diamond shape, and the projection is of non-circular shape, as shown in so-called diamond shape, (Fig. 3), adapted

snugly to receive the metal at the sides of opening $2^a$ so that the blade will, by said projection, be retained upon guard member 1 with its cutting edges in shaving relation to the guard teeth when the parts are assembled. Means are provided between the blade and the backing member to cause the blade to retain the backing in operative relation to the blade and the guard, for which purpose I have shown the blade provided with recesses or openings $2^b$, preferably at its ends, adapted to receive projections or pins 6 extending from the backing member toward the blade, but not to cooperate with the guard member to retain the backing. The backing member is provided with means to receive the projection $1^b$ of the guard member, for which purpose I have shown the backing member provided with an outwardly disposed depressed or recessed portion $3^a$ which will receive the projection $1^b$ while the side portions of the backing member bear upon the blade for clamping it against the guard member.

When the parts are to be assembled for use the blade may be placed upon the guard member so that the projection $1^b$ of the latter will enter the opening $2^a$ of the blade and thereby the blade is positioned in proper relation to the guard, and the backing member 3 will be applied upon the blade so that its projection 4 will pass through the blade and the guard member and the projections 6 will enter the openings or recesses $2^b$ of the blade, whereby the backing, by means of the blade, is properly positioned upon the blade with respect to its cutting edges and with respect to the guard teeth, whereupon the handle 5 will be screwed upon the projection 4, the handle engaging the guard member, to clamp the parts firmly together for shaving, (Fig. 5). The projections or pins 6 do not cooperate with the guard member to retain the backing member 3 with respect to the guard member, the guard member being shown shorter, where the projections 6 extend through the blade, than the distance between said projections in the direction of the length of the guard member, so that the latter does not interfere with the projections 6. The guard member 1 and backing member 3 are shown curved in a transverse direction whereby a thin blade 2 may be clamped therebetween in a curved shape to stiffen the blade in a well known manner, although the guard member and backing member may have other shape proper position to receive the projection 4 of the backing without the inconvenience sometimes experienced of having to manipulate the blade to register its holes with spaced holes of the guard, as heretofore known, and when the backing is applied upon the blade it will immediately be positioned and retained by reason of the projections 5 entering the openings or recesses $2^b$ in the blade, so that the parts are conveniently retained to receive the handle for clamping the parts together, the blade performing a new function in retaining the backing member with relation to the blade and to the teeth of the guard member.

Having now described my invention what I claim is:

1. A blade having a non-circular opening substantially centrally disposed to retain the blade in shaving relation to a guard member, said blade having means spaced from said opening to cooperate with a clamping member to retain the latter in shaving relation to the blade independent of the guard member.

2. A blade having an angularly shaped opening disposed substantially centrally in the blade to cooperate with a guard member to retain the blade in shaving position thereon, and said blade being provided with means spaced from said opening to cooperate with a backing member to retain the latter in shaving relation to the blade and to the guard member.

3. A safety razor comprising blade clamping members, a blade, means cooperative between one of said members and said blade to retain the latter in shaving relation to said member, said blade and the other member having cooperative means whereby the blade will retain said member in an operative position respecting the blade, and means to detachably clamp the blade between said members.

4. A safety razor comprising blade clamping members, a blade adapted to fit between said members, and means to clamp said members upon said blade, one of said members having means cooperative with the blade to retain the blade in operative relation to said member and the other member having means cooperative with the blade independent of the first named means whereby the blade will retain said member in operative relation to the blade independent of the first named means.

5. A safety razor comprising a guard member having a projection on one side, a

tive means independent of the guard member whereby the blade will retain the backing member in shaving relation to the blade.

6. A safety razor comprising a guard member provided with an opening and having projecting means on one side adjacent to said opening, a blade having an opening to receive said projecting means, said blade opening and projecting means being cooperative to retain the blade in shaving position upon the guard member, a backing member having a projection to extend through said openings in the blade and the guard member, and a handle cooperative with said projection to retain said members clamped upon the blade, said backing having projections and the blade having openings to receive said projections independent of the guard member whereby the blade will retain the backing member in shaving relation to the blade.

7. A safety razor comprising a guard member provided with a non-circular projection on one side, a blade having a non-circular opening to receive said projection and having other openings spaced from the first named opening, a backing member having projections to receive said other openings for retaining the backing member in shaving relation to the blade, and means for detachably clamping said members upon the blade.

8. A safety razor comprising a guard member provided with a projection on one side, a blade having an opening to receive said projection, said projection and opening having a cooperative contour to retain the blade in shaving position on the guard member, said blade having openings spaced from the first named opening, a backing member having a depressed portion to receive said projection of the guard member, said backing having projections to cooperate with the second named openings of the blade independently of the guard member whereby the blade will retain the backing in shaving relation to the blade and the guard member, and means for detachably clamping said members on the blade.

HENRY J. GAISMAN.

blade and the backing member to cause the blade to retain the backing in operative relation to the blade and the guard, for which purpose I have shown the blade provided with recesses or openings $2^b$, preferably at its ends, adapted to receive projections or pins 6 extending from the backing member toward the blade, but not to cooperate with the guard member to retain the backing. The backing member is provided with means to receive the projection $1^b$ of the guard member, for which purpose I have shown the backing member provided with an outwardly disposed depressed or recessed portion $3^a$ which will receive the projection $1^b$ while the side portions of the backing member bear upon the blade for clamping it against the guard member.

When the parts are to be assembled for use the blade may be placed upon the guard member so that the projection $1^b$ of the latter will enter the opening $2^a$ of the blade and thereby the blade is positioned in proper relation to the guard, and the backing member 3 will be applied upon the blade so that its projection 4 will pass through the blade and the guard member and the projections 6 will enter the openings or recesses $2^b$ of the blade, whereby the backing, by means of the blade, is properly positioned upon the blade with respect to its cutting edges and with respect to the guard teeth, whereupon the handle 5 will be screwed upon the projection 4, the handle engaging the guard member, to clamp the parts firmly together for shaving, (Fig. 5). The projections or pins 6 do not cooperate with the guard member to retain the backing member 3 with respect to the guard member, the guard member being shown shorter, where the projections 6 extend through the blade, than the distance between said projections in the direction of the length of the guard member, so that the latter does not interfere with the projections 6. The guard member 1 and backing member 3 are shown curved in a transverse direction whereby a thin blade 2 may be clamped therebetween in a curved shape to stiffen the blade in a well known manner, although the guard member and backing member may have other shape if desired.

In accordance with my invention the blade is retained upon the guard member in the proper position by means of the cooperation of the projection $1^b$ and the sides of opening $2^a$ of the blade irrespective of the backing, so that when the blade is placed upon the guard member said parts will be in [illegible] upon the blade it will immediately be positioned and retained by reason of the projections 5 entering the openings or recesses $2^b$ in the blade, so that the parts are conveniently retained to receive the handle for clamping the parts together, the blade performing a new function in retaining the backing member with relation to the blade and to the teeth of the guard member.

Having now described my invention what I claim is:

1. A blade having a non-circular opening substantially centrally disposed to retain the blade in shaving relation to a guard member, said blade having means spaced from said opening to cooperate with a clamping member to retain the latter in shaving relation to the blade independent of the guard member.

2. A blade having an angularly shaped opening disposed substantially centrally in the blade to cooperate with a guard member to retain the blade in shaving position thereon, and said blade being provided with means spaced from said opening to cooperate with a backing member to retain the latter in shaving relation to the blade and to the guard member.

3. A safety razor comprising blade clamping members, a blade, means cooperative between one of said members and said blade to retain the latter in shaving relation to said member, said blade and the other member having cooperative means whereby the blade will retain said member in an operative position respecting the blade, and means to detachably clamp the blade between said members.

4. A safety razor comprising blade clamping members, a blade adapted to fit between said members, and means to clamp said members upon said blade, one of said members having means cooperative with the blade to retain the blade in operative relation to said member and the other member having means cooperative with the blade independent of the first named means whereby the blade will retain said member in operative relation to the blade independent of the first named means.

5. A safety razor comprising a guard member having a projection on one side, a blade to fit upon said side of said member, said blade having an opening to receive said projection, said projection and the opening of the blade being cooperative to retain the blade from rotation on said member, a backing member for the blade, and means to clamp said blade between said members, said blade and backing member having coopera-

ing projecting means on one side adjacent to said opening, a blade having an opening to receive said projecting means, said blade opening and projecting means being cooperative to retain the blade in shaving position upon the guard member, a backing member having a projection to extend through said openings in the blade and the guard member, and a handle cooperative with said projection to retain said members clamped upon the blade, said backing having projections and the blade having openings to receive said projections independent of the guard member whereby the blade will retain the backing member in shaving relation to the blade.

7. A safety razor comprising a guard member provided with a non-circular projection on one side, a blade having a non-circular opening to receive said projection and having other openings spaced from the

8. A safety razor comprising a guard member provided with a projection on one side, a blade having an opening to receive said projection, said projection and opening having a cooperative contour to retain the blade in shaving position on the guard member, said blade having openings spaced from the first named opening, a backing member having a depressed portion to receive said projection of the guard member, said backing having projections to cooperate with the second named openings of the blade independently of the guard member whereby the blade will retain the backing in shaving relation to the blade and the guard member, and means for detachably clamping said members on the blade.

HENRY J. GAISMAN.

## PLAINTIFF'S EXHIBIT NO. 3.

UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY

GILLETTE SAFETY RAZOR COMPANY,
*Plaintiff,*
*v.*
ESSEX RAZOR BLADE CORP.,
*Defendant.*
EQUITY No. 4813

### STIPULATION

It is stipulated by and between counsel for the parties hereto as follows:

1. That the plaintiff, Gillette Safety Razor Company, is the owner of the legal title to the Gaisman patent in suit No. 1,633,739.

2. That subsequent to the granting of the patent in suit, and within six years prior to the filing of the bill of complaint herein, defendant manufactured and sold the two cartons of blades which may be identified as Carton 1, Royal Knight Blades, and Carton 2, New Deal Blades. Each of said cartons of blades has been initialed by counsel for both parties and may be received in evidence at the trial without objection.

3. That plaintiff notified the defendant, in writing, on January 31, 1934 of defendant's alleged infringement of the patent in suit.

C. M. PALMER,
Counsel for Defendant.
MERRELL E. CLARK,
Counsel for Plaintiff.

Dated: October 23, 1934.

**Carton of Defendant's Blades (Royal Knight).**

(Physical Exhibit.)

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**PLAINTIFF'S EXHIBIT NO. 5.**

**Carton of Defendant's Blades (New Deal).**

(Physical Exhibit.)

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**PLAINTIFF'S EXHIBIT NO. 6.**

**Triple Size Model of Original Type Gillette Razor.**

(Physical Exhibit.)

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**PLAINTIFF'S EXHIBIT NO. 7.**

**Triple Size Model of Razor of Gaisman Patent.**

(Physical Exhibit.)

COMPARISON OF OLD STYLE GILLETTE RAZOR AND RAZOR OF GAISMAN PATENT No. 1,633,739 ILLUSTRATING THE POSSIBLE VARIATION IN EDGE EXPOSURE OF THE BLADE DUE TO ERRORS IN MANUFACTURE.

OLD STYLE GILLETTE RAZOR

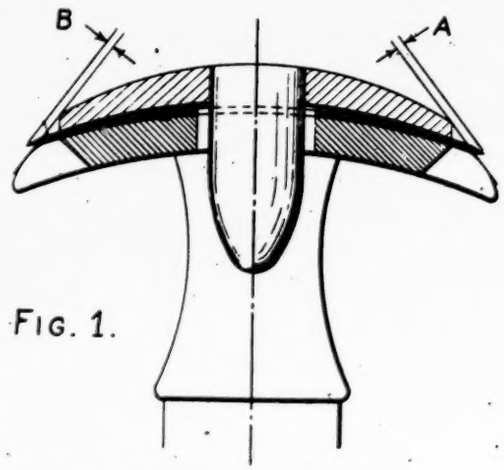



FIG. 1.

RAZOR OF GAISMAN PATENT NO. 1,633,739 IN SUIT

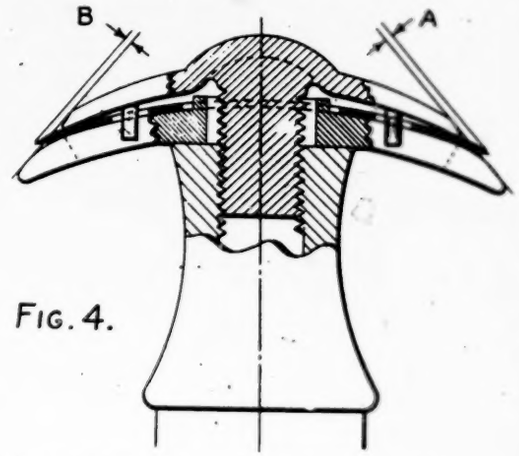



FIG. 4.

CAP, GUARD AND BLADE IN NORMAL POSITIONS GIVING THE DESIRED UNIFORM BLADE EXPOSURE ON BOTH SIDES.

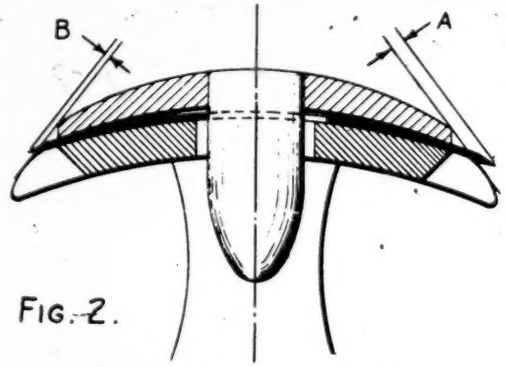



FIG. 2.

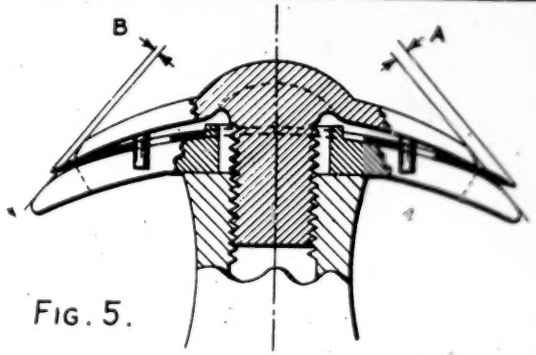



FIG. 5.

BLADE MOVED TO THE RIGHT AS FAR AS POSSIBLE.
BLADE EXPOSURE INCREASED AT "A" AND DECREASED AT "B."

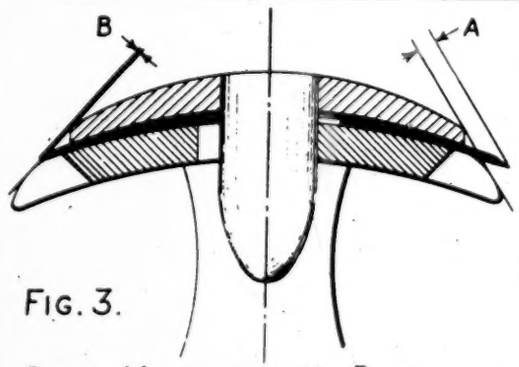
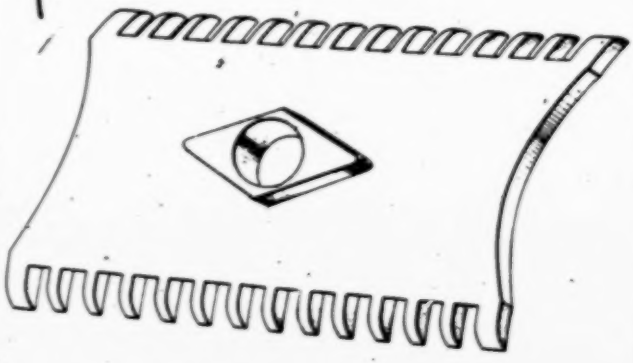



FIG. 3.

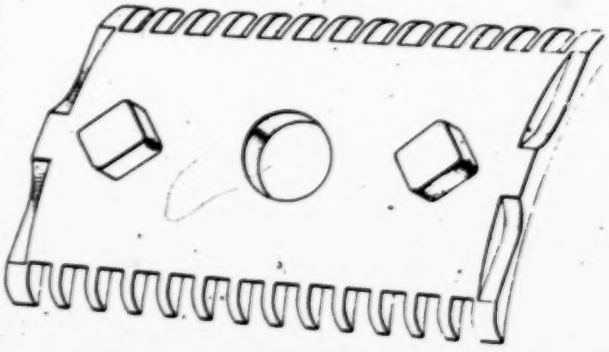
THE GUARD OF THE GAISMAN RAZOR CANNOT BE MOVED INDEPENDENTLY TO THE LEFT AFTER THE BLADE HAS BEEN MOVED TO THE RIGHT.

BLADE MOVED TO THE RIGHT AS IN FIGS. 3 AND 4. GUARD MOVED TO LEFT.
BLADE EXPOSURE GREATEST POSSIBLE AT "A" AND LEAST POSSIBLE AT "B."

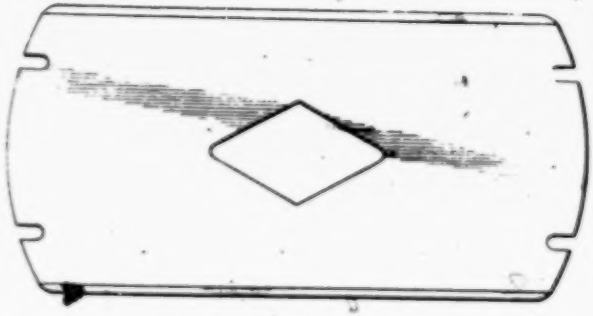
GUARD OF RAZOR OF GAISMAN PATENT.



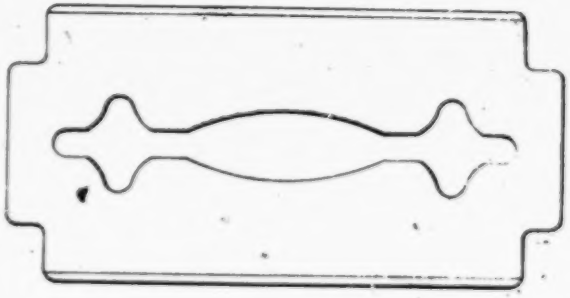
GUARD OF GILLETTE GOODWILL RAZOR



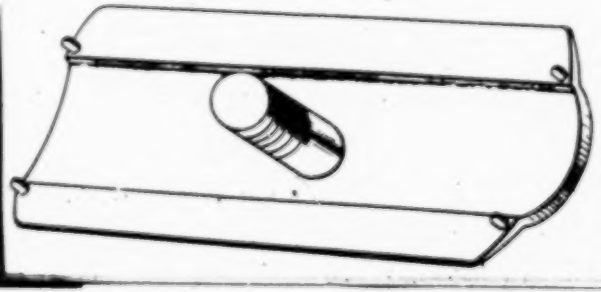
BLADE OF GAISMAN PATENT



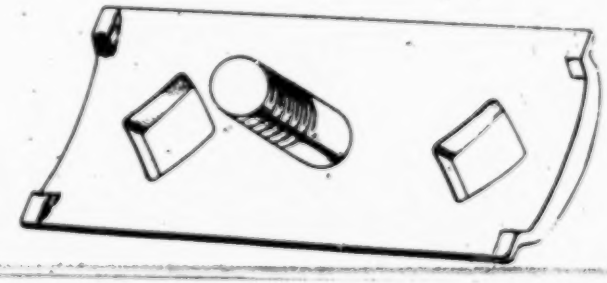
DEFENDANT'S BLADE



CAP OF RAZOR OF GAISMAN PATENT



CAP OF GILLETTE GOODWILL RAZOR



No. 775,134. PATENTED NOV. 15, 1904.

K. C. GILLETTE.

RAZOR.

APPLICATION FILED DEC. 3, 1901.

NO MODEL.

Fig. 1.

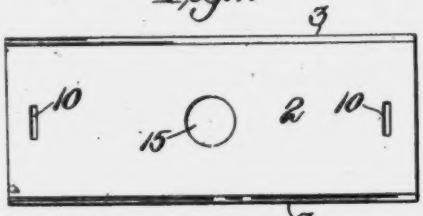
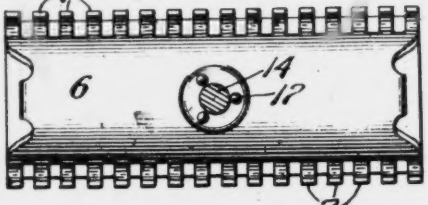
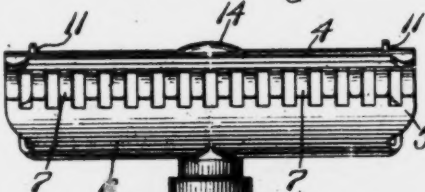
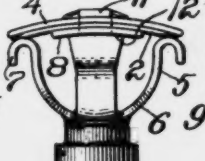



Fig. 4.

Fig. 5.



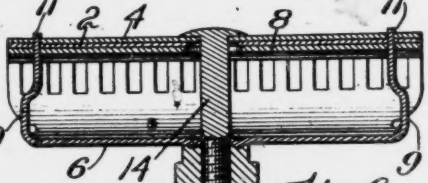



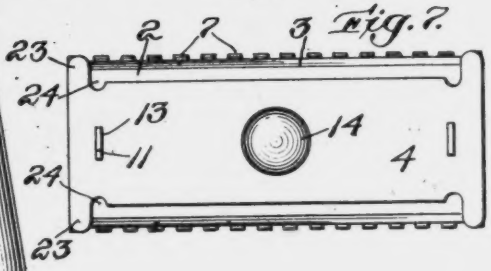

Fig. 6.

Fig. 8.

Fig. 2.

Fig. 3.

Fig. 7.




Inventor:

No. 775,134. Patented November 15, 1904.

# UNITED STATES PATENT OFFICE.

KING C. GILLETTE, OF BROOKLINE, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO FEDERAL TRUST COMPANY, OF BOSTON MASSACHUSETTS.

## RAZOR.

SPECIFICATION forming part of Letters Patent No. 775,134, dated November 15, 1904.

Application filed December 3, 1901. Serial No. 84,552. (No model.)

*To all whom it may concern:*

Be it known that I, KING C. GILLETTE, a citizen of the United States, residing at Brookline, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Razors, of which the following is a specification.

My invention is particularly applicable to razors of the safety type, the use of which as heretofore constructed involves a considerable amount of trouble, time, and expense on the part of the user in keeping the blades sharp, not only for the reason that the blades used in razors of this type require to be stropped and honed frequently, which cannot be done satisfactorily by the average individual user himself, but also for the reason that the blades are worn out by honing and have to be replaced at considerable expense.

A main object of my invention is to provide a safety-razor in which the necessity of honing or stropping the blade is done away with, thus saving the annoyance and expense involved therein, and to this end I make the blade of my razor of very thin sheet-steel, thereby getting rid of a large amount of metal which has heretofore been required to give the blade the proper amount of strength and rigidity, and I secure this blade to a holder so constructed as to provide a rigid backing and support for the blade, as well as a handle therefor, so that although my blade itself is readily flexible by reason of its thinness and lacks the rigidity of the ordinary razor-blade, yet when it is combined with its holder it receives a degree of rigidity sufficient to make it practically operative. Thus the material from which my blades are made need only be just thick enough to take a suitable edge, so that the blades require but a small amount of material and can be ground very quickly and easily, and hence I am able to produce and will be understood, of course, that my blades are made of uniform size and are detachably combined with the holders, so that a purchaser need buy but one holder and can then readily substitute a sharp blade for a dull one whenever necessary.

Other objects of my invention are to provide a holder adapted to receive a blade having two cutting edges, so that the life of a blade may thus be doubled, and also to provide a simple arrangement for adjusting the cutting edge or edges of a blade toward or from the guard to accommodate light or heavy growths of beard or to suit the skill and convenience of the user, and with the above ends in view I have devised a blade-holder which enables me to utilize the flexibility and elasticity of my blades in a very advantageous manner, my holder being also simple in construction and easily cleaned and having other advantages which will hereinafter appear.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of one form of my blade. Fig. 2 is a side elevation of the corresponding form of the complete holder and blade combined. Fig. 3 is an end view of the parts shown in Fig. 2. Fig. 4 is a similar view of the same parts slightly modified and without the handle, showing said parts separated from one another, but in position to be clamped together. Fig. 5 is a transverse section taken just above the guard, showing the latter in top plan view. Fig. 6 is a central longitudinal section through the razor-blade, guard, and adjacent parts; and Fig. 7 is a plan view of the outer face of the head of the razor. Fig. 8 is a plan view of the inner end of the handle shown in Figs. 2 and 3.

The blade 2 of my razor is made of sheet-

APPLICATION FILED DEC. 5, 1901.

NO MODEL.

Fig. 1.

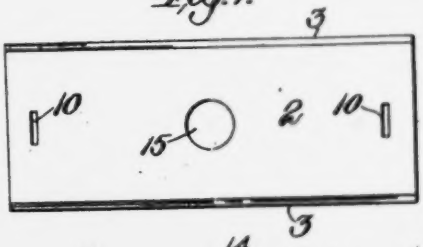



Fig. 4.

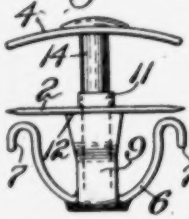
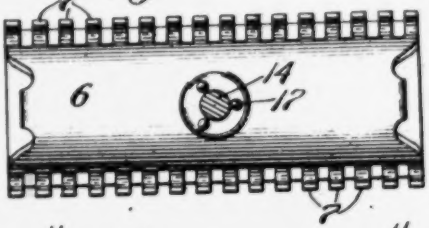
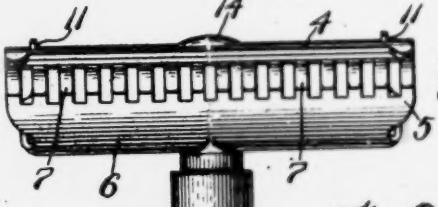
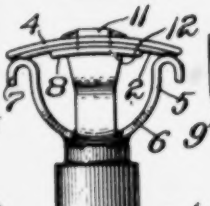



Fig. 5.



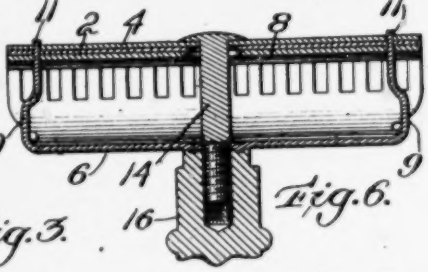



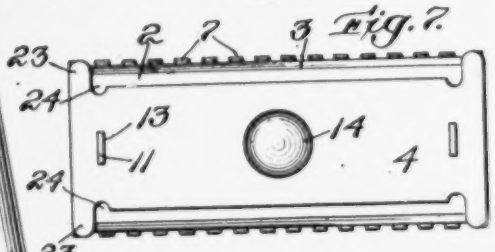

Fig. 6.

Fig. 8.

Fig. 3.

Fig. 2.

Fig. 7.




Witnesses:
Ruby M. Banfield.
Margaret A. Danihee.

Inventor:
King C. Gillette,
by
E. G. Chadwick,
Attorney.

KING C. GILLETTE, OF BROOKLINE, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO FEDERAL TRUST COMPANY, OF BOSTON MASSACHUSETTS.

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SPECIFICATION forming part of Letters Patent No. 775,134, dated November 15, 1904.

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My invention is particularly applicable to razors of the safety type, the use of which as heretofore constructed involves a considerable amount of trouble, time, and expense on the part of the user in keeping the blades sharp, not only for the reason that the blades used in razors of this type require to be stropped and honed frequently, which cannot be done satisfactorily by the average individual user himself, but also for the reason that the blades are worn out by honing and have to be replaced at considerable expense.

A main object of my invention is to provide a safety-razor in which the necessity of honing or stropping the blade is done away with, thus saving the annoyance and expense involved therein, and to this end I make the blade of my razor of very thin sheet-steel, thereby getting rid of a large amount of metal which has heretofore been required to give the blade the proper amount of strength and rigidity, and I secure this blade to a holder so constructed as to provide a rigid backing and support for the blade, as well as a handle therefor, so that although my blade itself is readily flexible by reason of its thinness and lacks the rigidity of the ordinary razor-blade, yet when it is combined with its holder it receives a degree of rigidity sufficient to make it practically operative. Thus the material from which my blades are made need only be just thick enough to take a suitable edge, so that the blades require but a small amount of material and can be ground very quickly and easily, and hence I am able to produce and sell my blades so cheaply that the user may buy them in quantities and throw them away when dull without making the expense thus incurred as great as that of keeping the prior blades sharp, and, moreover, will always have the cutting edge of his razor-blade in the same perfect condition as that of a new blade. It will be understood, of course, that my blades are made of uniform size and are detachably combined with the holders, so that a purchaser need buy but one holder and can then readily substitute a sharp blade for a dull one whenever necessary.

Other objects of my invention are to provide a holder adapted to receive a blade having two cutting edges, so that the life of a blade may thus be doubled, and also to provide a simple arrangement for adjusting the cutting edge or edges of a blade toward or from the guard to accommodate light or heavy growths of beard or to suit the skill and convenience of the user, and with the above ends in view I have devised a blade-holder which enables me to utilize the flexibility and elasticity of my blades in a very advantageous manner, my holder being also simple in construction and easily cleaned and having other advantages which will hereinafter appear.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of one form of my blade. Fig. 2 is a side elevation of the corresponding form of the complete holder and blade combined. Fig. 3 is an end view of the parts shown in Fig. 2. Fig. 4 is a similar view of the same parts slightly modified and without the handle, showing said parts separated from one another, but in position to be clamped together. Fig. 5 is a transverse section taken just above the guard, showing the latter in top plan view. Fig. 6 is a central longitudinal section through the razor-blade, guard, and adjacent parts; and Fig. 7 is a plan view of the outer face of the head of the razor. Fig. 8 is a plan view of the inner end of the handle shown in Figs. 2 and 3.

The blade 2 of my razor is made of sheet-steel having preferably a uniform thickness of about six one-thousandths of an inch and is shown in Fig. 1 as provided with two opposite cutting edges 3, so that when one edge becomes dull the other may be used. My blade-holder comprises a backing adapted to support the blade in such manner as to give its cutting edge or edges sufficient rigidity, a

guard arranged to limit the exposure of the cutting edge or edges of the blade and prevent the skin of the user from being cut thereby, a handle, and means whereby these parts are secured together and the blade is held against the backing with its cutting edge adjacent to the guard.

My preferred form of holder is arranged to present at the same time both cutting edges of the blade 2 in position for use in order that either edge may be used without changing the position of the blade, and to this end the two sides of the holder are made alike, the handle of the device being located midway between them and symmetrically arranged with respect thereto.

According to the construction shown in Figs. 2, 3, 5, 6, and 7 the supporting-backing for the blade 2 consists of a metal plate 4 of the same length as the blade, but slightly narrower than the same, and the guard 5, which may be stamped from sheet metal, is formed to provide a central portion 6, which is approximately semicylindrical in shape and presents its concave side to the backing 4 to provide a receptacle for lather, its side edges being notched to provide at each edge a series of teeth 7, which are bent outward and backward, as shown. The blade 2 is clamped between the backing 4 and guard 5, and to provide means for engaging the inner surface of the blade the guard may be provided with a narrow longitudinally-extending plate 8, secured to posts 9, formed integral with or otherwise secured to the guard at the ends thereof. In order to position the blade with respect to the guard and hold it against lateral movements, said blade may be provided with slots 10, adapted to receive the extended free ends 11 of the posts 9, the plate 8 being similarly slotted to receive the end portions 11 and supported on shoulders 12, formed at the base thereof. I prefer to make the end portions 11 long enough to pass through corresponding slots 13, formed in the backing 4, said backing also being thus positioned with respect to the blade and guard. The blade 2 is of course suitably tempered and is of such size that its cutting edges project slightly beyond the rounded bases of the teeth 7, and it and the backing and guard are detachably clamped together by means such as a threaded bolt 14, secured to the backing 4 and passing through a central perforation 15 in the blade 2 and through corresponding perforations in the plate 8 and guard 5, into the internally-screw-threaded hollow end of a handle 16, them from bending or vibrating in use, but is, in fact, considerably greater than is usually found in razor-blades of the common type, which are generally concaved to such an extent as to permit a considerable vibration of the cutting edge.

It is desirable that the edges 3 of the blade shall incline somewhat toward the handle 16 in order that they may be presented at a convenient angle with respect to the surface of the skin in the operation of shaving, and I accordingly prefer to make the inner surface of the backing 4 slightly concave transversely and to cause the blade to conform to said surface, so that both its cutting edges will point in the desired directions. The flexibility and elasticity of my blades, however, enable me to utilize the transverse curvature of the backing 4 to obtain other important results by merely making the blades themselves flat, this being, moreover, the simplest and most inexpensive way in which they can be made. Thus when my flat flexible blade is placed upon the plate 8, which is curved transversely to correspond with the backing 4, the curvature of said plate will cause it to engage the blade along its longitudinal center only, and when said backing is placed against the blade the latter will be first engaged by said backing at its edges only, and before the handle is screwed up and made to exert a clamping action on these parts the cutting edges of the blade will be separated from the edges of the guard by a distance depending on the curvature of said plate 8. As the handle is screwed up, however, the blade will be bent transversely, and its edges will be thus made to approach the edges of the guard more and more closely until finally the blade will be brought into contact throughout with the backing and the plate 8 and clamped between the same with its edges close to the edges of the guard. When the handle is unscrewed, the edges of the blade will spring away from the edges of the guard as fast as such movement is permitted, and thus in a very simple manner I provide an adjustment for the edges of the blade toward and from the guard for varying the space between them to provide for light or heavy growths of beard or to suit the skill or custom of the user. Furthermore, the act of bending the blade imparts a considerable amount of rigidity to it, partly because of the tension which is put upon it and partly because of the curved shape which it is made to assume, and the pressure exerted by the elasticity of the blade tends to hold the handle by

cesses 18, adapted to receive said projections, which are held therein by the pressure exerted by the bent blade with sufficient firmness to prevent the turning of the handle accidentally.

The plate 8 may be omitted from the guard 5, if desired, in which case the blade will be supported directly on the shoulders 12, as shown in Fig. 4; but when the blade is to be bent by the act of clamping it to the holder I prefer to employ said plate in order to provide a bearing for the inner surface of the blade throughout its length.

In order to prevent the corners of the blade 2 from coming in contact with and cutting the skin of the user, I prefer to provide at each corner of the backing a laterally-extending projection 23, so located that it will extend slightly beyond the edge of the corresponding corner of the blade and lie close against the same, thus covering the rear side thereof, as best shown in Fig. 7. This arrangement for protecting the corners of the blade is one of the important features of my invention and has the advantage that being located on the rear or outer side of the blade it makes it possible to leave a wholly-unobstructed space between the edge of the blade and the guard, extending throughout the length of the former and allowing a free passage of the lather at all points. To give sufficient flexibility to the projections 23 to enable them to follow the edges of the blade 2 as it is bent and to lie close against the corners thereof at all times, notches 24 may be provided at the bases of said projections, as shown in Fig. 7, thus increasing the length and relative flexibility thereof.

It will be evident that the thinner the material is of which my blades are made the more flexible will the blades be and the greater will be the ease and speed with which their cutting edges may be ground, and I have found that sheet-steel as thin as three one-thousandths of an inch may be used for my blades practically and successfully; but tempered blades having the usual transverse dimensions of safety-razor blades and made of steel which is considerably thicker than is required for a suitable cutting edge may still be sufficiently flexible to be capable of adjustment toward and from the guard in the manner described.

While I prefer to employ a flexible blade having two cutting edges, as herein described, yet my invention is not limited to a blade with two cutting edges nor to the particular construction of holder herein described, since, so far as I am aware, I am the first to produce a razor-blade which may be thrown away when dull without loss of economy and to account of its thinness and resulting flexibility. It will be evident also that the blade-holder herein described has novel features and advantages which are independent of the particular form of blade used with it, and I consider said holder itself to constitute an important portion of my invention.

I claim as my invention—

1. As a new article of manufacture, a flexible and detachable blade for safety-razors.

2. As a new article of manufacture, a detachable razor-blade of such thinness and flexibility as to require external support to give rigidity to its cutting edge.

3. As an article of manufacture, a flexible and detachable razor-blade having two opposite cutting edges.

4. As an article of manufacture, a flexible and detachable razor-blade made of sheet-steel of uniform thickness and provided with two opposite cutting edges.

5. As an article of manufacture, a detachable, transversely-flexible razor-blade for safety-razors, said blade having a longitudinal cutting edge.

6. As an article of manufacture, a detachable, transversely-flexible razor-blade having two opposite longitudinal cutting edges.

7. In a razor, the combination with a flexible blade of a holder comprising a handle, means for supporting the blade and giving rigidity to its cutting edge, and means for detachably securing the blade thereto.

8. In a razor, the combination with a transversely-flexible blade having a longitudinal cutting edge, of a holder comprising a handle, a guard, and means for bending the blade transversely and thereby adjusting its cutting edge with relation to the guard.

9. In a razor, the combination with a flexible blade of a holder comprising a handle, a backing adapted to support said blade and give rigidity to its cutting edge, and means for detachably securing the blade thereto.

10. In a razor, the combination with a flexible blade of a holder comprising a guard, a handle, a backing adapted to support said blade and give rigidity to its cutting edge, and means for detachably securing the blade thereto.

11. In a razor, the combination with a flexible blade of a holder comprising a rigid backing adapted to support said blade and give rigidity to its cutting edge, a guard, and means for detachably clamping the blade between said backing and guard.

12. In a razor, the combination with a flexible blade having a cutting edge of a holder comprising a handle, a rigid backing arranged to support said blade near its longitudinal edges, a guard arranged

by, a handle, and means whereby these parts are secured together and the blade is held against the backing with its cutting edge adjacent to the guard.

My preferred form of holder is arranged to present at the same time both cutting edges of the blade 2 in position for use in order that either edge may be used without changing the position of the blade, and to this end the two sides of the holder are made alike, the handle of the device being located midway between them and symmetrically arranged with respect thereto.

According to the construction shown in Figs. 2, 3, 5, 6, and 7 the supporting-backing for the blade 2 consists of a metal plate 4 of the same length as the blade, but slightly narrower than the same, and the guard 5, which may be stamped from sheet metal, is formed to provide a central portion 6, which is approximately semicylindrical in shape and presents its concave side to the backing 4 to provide a receptacle for lather, its side edges being notched to provide at each edge a series of teeth 7, which are bent outward and backward, as shown. The blade 2 is clamped between the backing 4 and guard 5, and to provide means for engaging the inner surface of the blade the guard may be provided with a narrow longitudinally-extending plate 8, secured to posts 9, formed integral with or otherwise secured to the guard at the ends thereof. In order to position the blade with respect to the guard and hold it against lateral movements, said blade may be provided with slots 10, adapted to receive the extended free ends 11 of the posts 9, the plate 8 being similarly slotted to receive the end portions 11 and supported on shoulders 12, formed at the base thereof. I prefer to make the end portions 11 long enough to pass through corresponding slots 13, formed in the backing 4, said backing also being thus positioned with respect to the blade and guard. The blade 2 is of course suitably tempered and is of such size that its cutting edges project slightly beyond the rounded bases of the teeth 7, and it and the backing and guard are detachably clamped together by means such as a threaded bolt 14, secured to the backing 4 and passing through a central perforation 15 in the blade 2 and through corresponding perforations in the plate 8 and guard 5, into the internally-screw-threaded hollow end of a handle 16, which bears against the outside of the guard, the clamping action being exerted in an obvious manner by screwing up the handle, and thus drawing the parts together. When the parts are thus clamped together, the blade is firmly supported so near its cutting edges that said edges are given a degree of rigidity which is not only amply sufficient to prevent which are generally concaved to such an extent as to permit a considerable vibration of the cutting edge.

It is desirable that the edges 3 of the blade shall incline somewhat toward the handle 16 in order that they may be presented at a convenient angle with respect to the surface of the skin in the operation of shaving, and I accordingly prefer to make the inner surface of the backing 4 slightly concave transversely and to cause the blade to conform to said surface, so that both its cutting edges will point in the desired directions. The flexibility and elasticity of my blades, however, enable me to utilize the transverse curvature of the backing 4 to obtain other important results by merely making the blades themselves flat, this being, moreover, the simplest and most inexpensive way in which they can be made. Thus when my flat flexible blade is placed upon the plate 8, which is curved transversely to correspond with the backing 4, the curvature of said plate will cause it to engage the blade along its longitudinal center only, and when said backing is placed against the blade the latter will be first engaged by said backing at its edges only, and before the handle is screwed up and made to exert a clamping action on these parts the cutting edges of the blade will be separated from the edges of the guard by a distance depending on the curvature of said plate 8. As the handle is screwed up, however, the blade will be bent transversely, and its edges will be thus made to approach the edges of the guard more and more closely until finally the blade will be brought into contact throughout with the backing and the plate 8 and clamped between the same with its edges close to the edges of the guard. When the handle is unscrewed, the edges of the blade will spring away from the edges of the guard as fast as such movement is permitted, and thus in a very simple manner I provide an adjustment for the edges of the blade toward and from the guard for varying the space between them to provide for light or heavy growths of beard or to suit the skill or custom of the user. Furthermore, the act of bending the blade imparts a considerable amount of rigidity to it, partly because of the tension which is put upon it and partly because of the curved shape which it is made to assume, and the pressure exerted by the elasticity of the blade tends to hold the handle by friction against the guard, and thus to prevent it from becoming unscrewed accidentally. As an additional means for locking the handle in any desired position I have shown the guard 5 in Fig. 5 as provided with three small rounded projections 17 on its top surface beneath the inner end of the handle, the latter being provided with a number of shallow re-

, if desired, in which case the blade will be supported directly on the shoulders 12, as shown in Fig. 4; but when the blade is to be bent by the act of clamping it to the holder I prefer to employ said plate in order to provide a bearing for the inner surface of the blade throughout its length.

In order to prevent the corners of the blade 2 from coming in contact with and cutting the skin of the user, I prefer to provide at each corner of the backing a laterally-extending projection 23, so located that it will extend slightly beyond the edge of the corresponding corner of the blade and lie close against the same, thus covering the rear side thereof, as best shown in Fig. 7. This arrangement for protecting the corners of the blade is one of the important features of my invention and has the advantage that being located on the rear or outer side of the blade it makes it possible to leave a wholly-unobstructed space between the edge of the blade and the guard, extending throughout the length of the former and allowing a free passage of the lather at all points. To give sufficient flexibility to the projections 23 to enable them to follow the edges of the blade 2 as it is bent and to lie close against the corners thereof at all times, notches 24 may be provided at the bases of said projections, as shown in Fig. 7, thus increasing the length and relative flexibility thereof.

It will be evident that the thinner the material is of which my blades are made the more flexible will the blades be and the greater will be the ease and speed with which their cutting edges may be ground, and I have found that sheet-steel as thin as three one-thousandths of an inch may be used for my blades practically and successfully; but tempered blades having the usual transverse dimensions of safety-razor blades and made of steel which is considerably thicker than is required for a suitable cutting edge may still be sufficiently flexible to be capable of adjustment toward and from the guard in the manner described.

While I prefer to employ a flexible blade having two cutting edges, as herein described, yet my invention is not limited to a blade with two cutting edges nor to the particular construction of holder herein described, since, so far as I am aware, I am the first to produce a razor-blade which may be thrown away when dull without loss of economy and to combine such a blade with a holder adapted to support the blade and also to give its cutting edge the rigidity necessary to make it operative, which rigidity the blade itself lacks on important portion of my invention.

I claim as my invention—

1. As a new article of manufacture, a flexible and detachable blade for safety-razors.

2. As a new article of manufacture, a detachable razor-blade of such thinness and flexibility as to require external support to give rigidity to its cutting edge.

3. As an article of manufacture, a flexible and detachable razor-blade having two opposite cutting edges.

4. As an article of manufacture, a flexible and detachable razor-blade made of sheet-steel of uniform thickness and provided with two opposite cutting edges.

5. As an article of manufacture, a detachable, transversely-flexible razor-blade for safety-razors, said blade having a longitudinal cutting edge.

6. As an article of manufacture, a detachable, transversely-flexible razor-blade having two opposite longitudinal cutting edges.

7. In a razor, the combination with a flexible blade of a holder comprising a handle, means for supporting the blade and giving rigidity to its cutting edge, and means for detachably securing the blade thereto.

8. In a razor, the combination with a transversely-flexible blade having a longitudinal cutting edge, of a holder comprising a handle, a guard, and means for bending the blade transversely and thereby adjusting its cutting edge with relation to the guard.

9. In a razor, the combination with a flexible blade of a holder comprising a handle, a backing adapted to support said blade and give rigidity to its cutting edge, and means for detachably securing the blade thereto.

10. In a razor, the combination with a flexible blade of a holder comprising a guard, a handle, a backing adapted to support said blade and give rigidity to its cutting edge, and means for detachably securing the blade thereto.

11. In a razor, the combination with a flexible blade of a holder comprising a rigid backing adapted to support said blade and give rigidity to its cutting edge, a guard, and means for detachably clamping the blade between said backing and guard.

12. In a razor, the combination with a flexible blade having a cutting edge of a holder comprising a handle, a rigid backing arranged to support said blade near its longitudinal edges, a guard arranged to engage the opposite side of said blade between said edges, and means for adjustably clamping said backing and guard together.

13. In a razor, the combination with a flat,

flexible blade having two opposite cutting edges, of a holder comprising a handle, a double guard, a rigid backing adapted to support said blade, and means for simultaneously bending the blade transversely and clamping it against said backing.

14. In a razor, the combination with a flexible blade of a rigid backing adapted to support said blade, a guard, a handle, and means operated by said handle for bending the blade with respect to the guard and simultaneously clamping it against said backing.

15. In a razor, the combination with a flexible blade having two opposite cutting edges, of a holder comprising a handle, a rigid backing adapted to support said blade, a double guard, and means operated by the handle for bending said blade transversely and thereby adjusting its edges with relation to said guard.

16. In a razor, the combination with a flexible blade of a holder comprising a handle, a transversely-curved, rigid backing adapted to engage said blade near its edges, a correspondingly-curved guard adapted to engage the opposite side of said blade between its edges, and means for drawing said backing and guard together, thereby clamping the blade between them and bending it transversely.

17. In a razor, the combination with a blade having two opposite cutting edges, of a guard having two opposite edges coöperating with said cutting edges respectively, means for clamping said blade thereto, and a handle located midway between the edges of the guard.

18. In a razor, the combination with a blade having two opposite cutting edges, of a holder comprising a backing, a guard having two opposite edges coöperating with said cutting edges respectively, means for clamping the blade between said backing and guard, and a handle located midway between the edges of said guard and symmetrically arranged with respect thereto.

19. In a razor, the combination with a blade having two opposite cutting edges, of a holder comprising a central handle, a guard, a backing, and means operated by the handle for clamping the blade between the guard and backing.

20. In a razor, the combination with a perforated blade having two opposite cutting edges, of a holder comprising a guard having two opposite edges coöperating with said cutting edges respectively, a backing, a handle, and clamping means passing through said blade.

21. In a razor, the combination with a blade of a holder comprising a guard, a handle, and a backing located on the opposite side of the blade from said guard and handle and provided with projections arranged to cover the corners of the blade without crossing its cutting edge.

22. In a razor, the combination with a blade of a holder comprising a handle, a guard, a backing having projections arranged to cover the corners of the blade without crossing its cutting edge, and means for clamping said blade and backing together.

23. In a razor, the combination with a flexible blade having two opposite cutting edges, of a holder comprising a backing adapted to support and give rigidity to said blade near its cutting edges, a double guard, a handle symmetrically arranged with respect to the blade, and means for detachably securing the blade between the backing and the guard.

24. In a razor, the combination with a perforated blade of a holder comprising a guard, a backing, a handle, and positioning and clamping means passing through the perforations in the blade.

25. In a razor, the combination with a perforated blade of a holder comprising a correspondingly-perforated guard, a backing, a handle, and clamping and positioning means passing through the perforations in the blade and guard.

26. In a razor, the combination with a perforated blade having two opposite cutting edges, of a holder comprising a handle, a backing, a double guard, and clamping and positioning means passing through the perforations in the blade.

27. In a razor, the combination with a perforated flexible blade of a holder comprising a transversely-curved rigid backing, a guard curved transversely to correspond with said backing, positioning means passing through the perforations in the blade, and means for detachably clamping the blade between the backing and the guard.

28. In a razor, a holder comprising a backing, a guard, positioning means secured to one of said parts and passing through perforations formed in the other of said parts, a handle, and means for drawing the guard and backing together.

29. In a razor, a holder comprising a guard having opposite longitudinal edges formed to coöperate with a double-edged blade, means for holding a blade in proper relation to said guard, and a handle secured to said guard between the longitudinal edges and symmetrically arranged with respect thereto.

30. A safety-razor comprising a supporting-plate having studs, a blade having openings fitting said studs, a securing-plate also having openings fitting said studs, and means for adjusting said securing-plate with relation to the supporting-plate.

In testimony whereof I have hereunto subscribed my name this 23d day of November, 1901.

KING C. GILLETTE.

Witnesses:

E. D. CHADWICK,

JOSEPH T. BRENNAN.

O. A. CLARK.

SAFETY RAZOR.

APPLICATION FILED JAN. 9, 1909.

933,020. Patented Aug. 31, 1909.

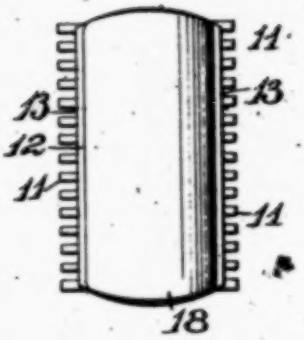



Fig. 1

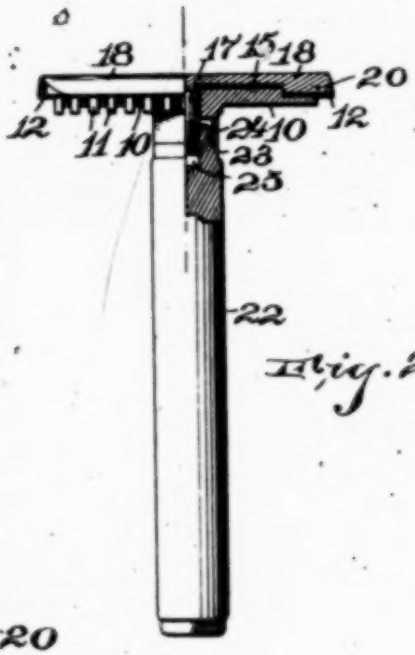



Fig. 2

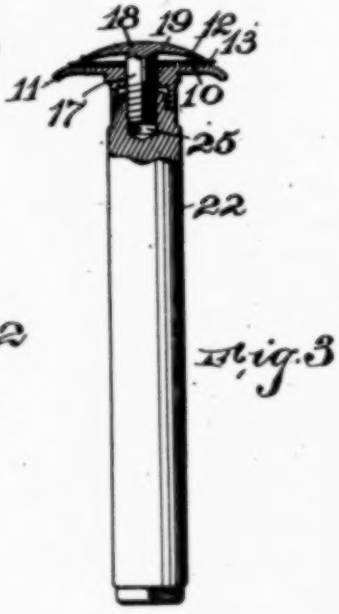



Fig. 3

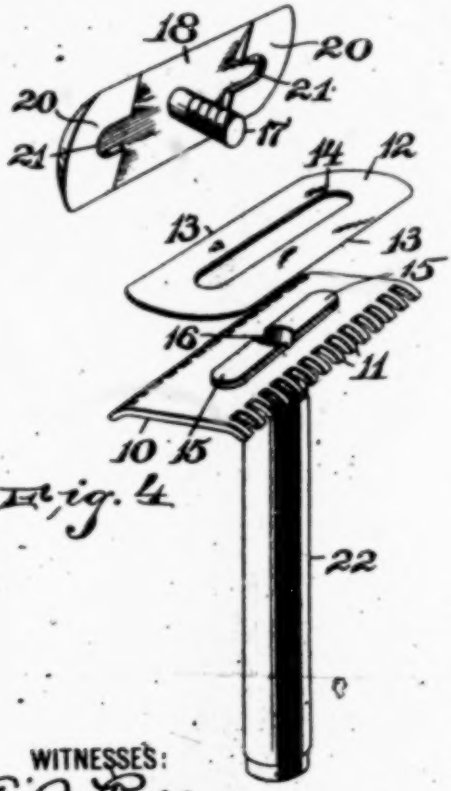



Fig. 4

WITNESSES:

E. A. Pell

N. A. Johnson

# UNITED STATES PATENT OFFICE.

OSROE A. CLARK, OF NEWARK, NEW JERSEY.

## SAFETY-RAZOR.

933,020. Specification of Letters Patent. Patented Aug. 31, 1909.

Application filed January 9, 1909. Serial No. 471,468.

*To all whom it may concern:*

Be it known that I, OSROE A. CLARK, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Safety-Razors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to a safety razor that comprises a handle portion which is screwed on a screw-threaded stem on a face plate, and these two, when screwed together, hold between them a guard and a blade so that the blade, which has preferably two opposite cutting edges, can be used for shaving in conjunction with the guard so as to prevent cutting the operator.

The invention is particularly designed to provide co-acting means on the guard and on the face plate to hold the face plate and the backing in register and to position them when they are assembled, and also to provide the blade with a perforation to permit the assembling of the parts through the blade and to also permit the blade to surround the positioning means or the co-acting means for holding the guard and the face plate in register so that the blade is also held in its proper position with its edges in parallel relation with the edges of the guard. The co-acting means for holding the parts in register are arranged on the opposed faces of the guard and the face plate and pass only through the blade and not through each other so that the expensive perforation of parts is obviated, and there are also no unseemly projecting portions, whereby the exterior is smooth and without any protuberances.

The invention is illustrated in the accompanying drawing, in which—

Figure 1 is a top view of the razor. Fig. 2 is a side view of the same, one half of the blade-holding portion being shown in section. Fig. 3 is a cross-section through the center of the razor showing the handle in elevation. Fig. 4 is a perspective view of the razor with its parts separated, but showing the handle up close to the guard.

The device comprises a guard 10 which is preferably formed with an upper face to form a flat bearing surface for a blade and has teeth 11, which teeth are preferably arranged on the two opposite edges, since the duplication of edges, which is not essential, gives more utility to the device. On the guard is placed a blade 12 which has its two opposite edges 13 sharpened to form cutting edges, which edges are adapted to co-act with the teeth 11 and form the safety cutting edges. The blade is also provided with a perforation 14 which is made of a contour substantially the same as a projection 15 on the guard so that when the blade is set down over this projection, it is held against any twisting, and the edges of the guard and the edges of the blade are bound to be parallel. The guard is perforated as at 16, which perforation receives a screw-threaded post 17 which projects from the face plate 18, which face plate has a curved outer surface 19 to give it a smooth face on the portion that comes in contact with the operator's face. The portions 20 of the face plate 18 rest down on the ends of the blade 12, as shown in Fig. 2, and hold the blade strictly in position, the face plate being recessed as at 21 to receive the ends of the projection 15 so that when the face plate is in position on top of the blade and the guard, it is also held against any twisting, and its edges are also insured in their parallel relation with the edges of the blade and the edges of the guard. A handle 22 has a shoulder 23 which is pressed up against a flange 24 on the guard, and it also has a screw-threaded recess 25 which receives the screw-threaded post 17, and when the handle is turned all the parts are locked in their position.

When the razor is to be assembled, the face plate and the blade are placed together with the co-acting means on the face plate and on the guard operating to hold the parts together, and the blade, by means of its perforation, surrounding the co-acting means, and then the handle is screwed onto the post 17 and the whole is made into one structure, forming a smooth exterior at all points and having no projections, which makes the device more easily cleaned. The blade and the face plate are preferably made of the same contour, particularly on their ends, but are made slightly longer than the guard so that when the handle 22 is unscrewed, the blade

and the face plate can be taken from the guard together and then separated one from the other afterward. It also provides an easy means for holding the blade and the face plate by means of the thumb and forefinger of one hand, when they are assembled, and they are thus held in register while being placed over the projection 15 of the guard.

Having thus described my invention, what I claim is:—

1. A safety razor compfising a guard having a substantially centrally arranged perforation, a projecting portion on the face of the guard and extending both sides of the perforation, a blade having a single perforation to receive the projecting portions on the guard, a face plate having a recess on its inner face to receive the projections on the guard, a screw-threaded stud on the face plate adapted to pass through the perforation in the guard to approximately center the face plate on the guard and on which the face plate can be swung to seat itself on the projection of the guard, and a handle to bear on the under side of the guard and receive the screw-threaded stud to secure the parts together.

2. A safety razor comprising a guard having a substantially central perforation, a projecting portion on the face of the guard and extending on both sides of the perforation, a blade having a single perforation to receive the projection on the guard, a face plate having a recess on its inner face to receive the projections on the guard, the blade and the face plate being longer than the guard to permit the fingers to pass the guard so that the face plate and blade can be seated at the same time on the projection on the guard, a screw-threaded stud passing through the perforation in the guard, and a handle to receive the stud to secure the parts together.

In testimony, that I claim the foregoing, I have hereunto set my hand this 6th day of January 1909.

OSROE A. CLARK.

Witnesses:
E. A. Pell,
Wm. H. Camfield.

L. NAHEMOW.

SAFETY RAZOR.

APPLICATION FILED JAN. 11, 1909.

952,837.

Patented Mar. 22, 1910.

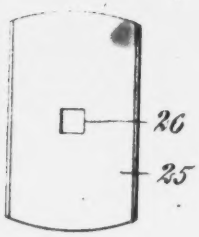



FIG. 4.

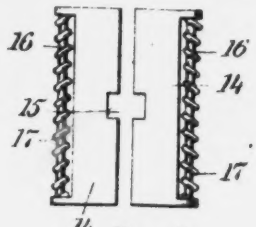



FIG. 3.

FIG 1

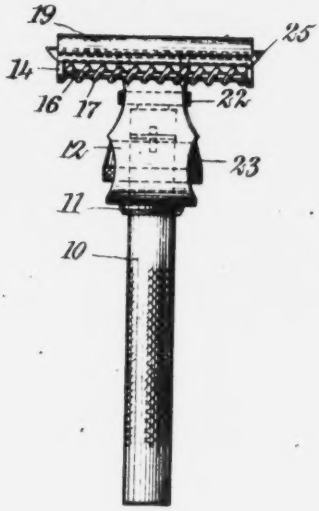



FIG. 2

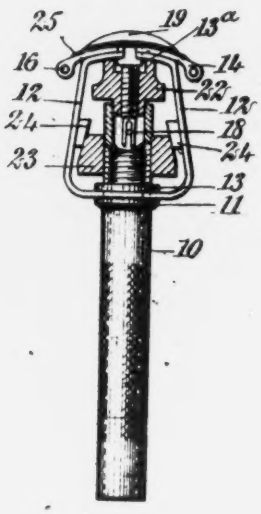
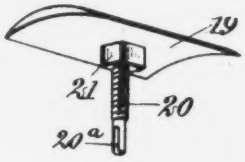



FIG. 5




WITNESSES

N. Shamroy

INVENTOR

Louis Nahemow

BY Munn & Co

ATTORNEYS

# UNITED STATES PATENT OFFICE.

LOUIS NAHEMOW, OF NEW YORK, N. Y.

## SAFETY-RAZOR.

952,837. Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed January 11, 1909. Serial No. 471,693.

*To all whom it may concern:*

Be it known that I, LOUIS NAHEMOW, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Safety-Razor, of which the following is a full, clear, and exact description.

The invention is an improved safety razor, and in its preferred form belongs to that general type of such devices in which a double guard plate is arranged at right-angles to the handle and is to be used in connection with a flexible blade.

Heretofore the adjustability of safety razors using flexible blades depended upon the curve to which the blade was bent, the adjustment being obtained by slacking the clamping plate to admit of the blade slightly straightening out, thus raising the cutting edges from the guard plate, thereby rendering the razor less safe.

By my invention the cutting edges of the blade are retained close to the guard plate at all times during the use of the razor, and each guard or guard plate is made as a separate section, with means to spread the sections apart or move them together according to whether a close shave or otherwise is desired.

The invention further resides in providing each guard with rotary teeth which are arranged in a helix to feed the skin obliquely to the cutting edge of the blade, the winding of the teeth of one guard being reverse to the winding of the teeth of the other guard.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side view of a safety razor constructed in accordance with my invention; Fig. 2 is a view of the razor looking at right-angles to the position shown in Fig. 1 and partly in central vertical section; Fig. 3 is a plan of the sectional guard; Fig. 4 is a plan of the razor blade; and Fig. 5 is a perspective view of the clamping plate.

The razor is provided with a handle 10 of suitable form which is threaded at its inner end, with a collar 11 at the outer end of the thread, on which is seated a spring yoke 12, the latter being fixed to the handle between the collar and jam-nut 13. The spring arms of the yoke project inwardly beyond the inner threaded end of the handle and opposed end portions $13^a$, to which is fixed a double guard or guard plates 14, as shown in Fig. 3, each guard or guard plate 14 being constructed as a separate section, with one of the sections carried by each arm. The double guard has a central angular opening 15 and is formed with an outer convex face. At the outer edge of each guard plate is journaled a roller 16 having a wire 17 wound helically thereabout to feed the skin to the blade teeth, the winding of the teeth of one roller being reverse to the winding of the teeth of the opposite roller.

The inner threaded end of the handle 10 is of tubular construction and is provided with a cross-pin 18. A clamping plate 19, as shown in perspective in Fig. 5, has a concave inner face, from which projects a threaded shank 20, the latter having an enlarged angular portion 21 at its inner end to fit the opening 15 in the double guard. The extremity $20^a$ of the shank 20 is bifurcated and engages, when the razor is assembled, over the cross-pin 18. Threaded on the shank 20 and bearing on the opposed portions $13^a$ of the yoke is a nut 22, the nut having a recess in its inner face for receiving the angular portion 21 of the shank 20, and provided with a boss on its opposite face fitting within the bore of the handle. Threaded on the handle 10 within the yoke is a conical nut 23 which bears at opposite sides on beveled lugs 24 in fixed relation to the spring arms of the yoke, the bevel bearing faces of the lugs conforming to the taper of the nut, and with the smaller end of the nut facing inwardly.

The double edge blade 25 for the razor, as shown in detail in Fig. 4, is of a thin flexible construction and has a central opening 26 of angular form to fit the angular portion 21 of the clamping plate shank. In assembling the razor the shank of the clamping plate is passed through the blade and the latter seated on the double guard, with the bifurcated inner end of the guard shank engaging over the pin 18, the nut 22 being threaded on the shank as the latter is passed into the tubular end of the handle. On tightening the nut 22 the blade is clamped to the guard and enforced to conform to the outer convex face thereof, the clamping plate binding on the blade at the edges only. On adjusting the conical nut 23 the two sec-

tions or guards of the double guard are moved to any required position relatively to the cutting edges of the blade, the guards being spread apart when the nut is screwed inwardly, and the guards approaching each other under the influence of the spring arms of the yoke when the nut is screwed outwardly.

In shaving, the rotary teeth of the guard in use, feed the skin to the blade in a direction corresponding to the winding of the rib or teeth and obliquely relatively to the cutting edge of the blade, whereby a shearing cut is attained and a clean, smooth shave effected.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a razor having a blade with cutting edges at the opposite sides, a roller adjacent to each cutting edge of the blade, having helical teeth to feed the skin to the blade obliquely to the said cutting edge, with the winding of the teeth of one roller reverse to the winding of the teeth of the other roller, whereby the feeding of the teeth of one roller is to one side of a median line and the feeding of the teeth of the other roller is to the opposite side of the said line.

2. In a razor, a handle, a double guard arranged at approximately right-angles to the handle, each guard of the double guard of a separate section, a support for each guard, a razor blade having cutting edges and means to operatively engage with the guard supports to simultaneously spread the guards apart and move them together to adjust them to the cutting edges of the razor blade.

3. In a razor, a handle, a yoke secured to the handle having spring arms, a guard carried by each of said arms providing a seat for a razor blade, and means for spreading the arms to adjust the guards to the cutting edges of the razor blade.

4. In a razor, a handle, a yoke secured to the handle having spring arms, a double guard made in two sections, with a section attached to each of the spring arms and providing a seat for a razor blade, and a conical nut threaded on the handle and bearing on the spring arms to spread the latter apart in adjusting the sections of the double guard to the cutting edges of the razor blade.

5. In a razor, a double guard having a convex face, the guard being constructed of two guard sections oppositely arranged, a thin flexible blade having cutting edges at opposite sides, means to clamp the blade to the guard and enforce the blade to conform to the convex face of the guard, and means to move the guard sections to and from each other whereby they are adjusted to the cutting edges of the flexible blade.

6. In a razor, a handle, a yoke fixed to the handle and extended over the inner end thereof, guards carried by the yoke, said handle having a tubular inner end provided with a cross-pin, a clamping plate having a shank passing through the guard, said shank having a bifurcated inner end engaging over said cross-pin, and a nut to draw the clamping plate to the guards, threaded on the shank and bearing on the inside of the yoke.

7. In a safety razor, a handle, a yoke attached to the handle, having spring arms provided with opposed end portions extending over the end of the handle, a double-edge guard composed of two separate guard sections, with the sections attached to the opposed end portions of the spring arms, a clamping plate having a shank passing between the guard sections of the double guard, a nut to draw the clamping plate to the guard, threaded on said shank and bearing on the inside of the guard, lugs fixed on the spring arms of the yoke, and a conical nut threaded on the handle and bearing on the lugs.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LOUIS NAHEMOW.

Witnesses:
W. W. HOLT,
JOHN P. DAVIS.

150

R. C. CARRERAS.

SAFETY RAZOR.

APPLICATION FILED DEC. 27, 1910.

1,000,235.

Patented Aug. 8, 1911.

Fig. 1.

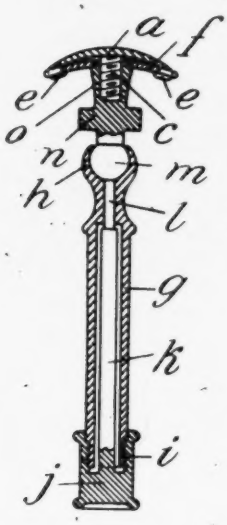



Fig. 2.

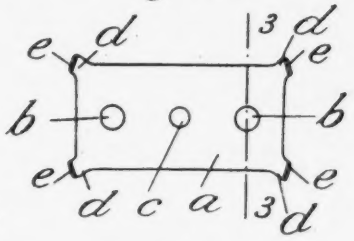



Fig. 3.

Fig. 4.

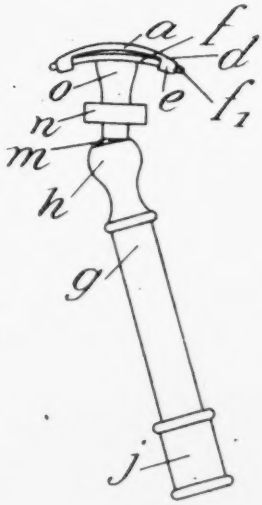



Fig. 5.

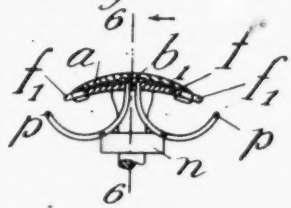
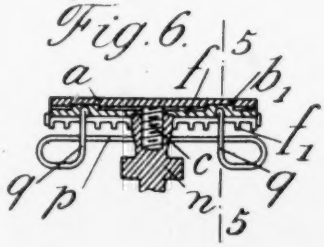



Fig. 6.




Witnesses

David Watts.

J. F. Peixoto

Inventor

R. C. Carreras

by Williamson, Dike & Watts

his Attorneys.

# UNITED STATES PATENT OFFICE.

RAMON CASTELLÓ CARRERAS, OF BARCELONA, SPAIN.

## SAFETY-RAZOR.

1,000,235. Specification of Letters Patent. Patented Aug. 8, 1911.

Application filed December 27, 1910. Serial No. 599,333.

*To all whom it may concern:*

Be it known that I, RAMON CASTELLÓ CARRERAS, a subject of the King of Spain, residing at Barcelona, Spain, have invented certain new and useful Improvements in Safety-Razors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to safety razors and has for its object to provide an improved safety razor consisting in a new and useful arrangement of parts which will be hereinafter fully described and represented in the annexed drawing.

My invention embodies certain improvements consisting: in elongating the corners of the top plate so as to cover the corners of the blade for protecting same at the comb edge; in furnishing the inner face of the top plate with recesses or sockets suitably disposed and the inner face of the comb with projections or pins which fit into said sockets after passing through holes suitably bored out in the razor blade, so that the latter may be firmly held in place; in avoiding or eliminating the guide-pins carried by the top plate in the usual apparatus, and the holes bored out in the comb through which said guide-pins pass to the outer face of the comb; in providing the handle of the apparatus with a spherical connection to permit the blade to be held, respectively to the handle, at any desired angle, in order to place the apparatus in the most convenient position during the shaving operation; and in providing a wire before the comb to be in frictional contact with the skin so as to cause it to be stretched and thus facilitate the shaving.

My improved safety razor is shown in the accompanying drawing, in which like reference letters represent like parts throughout the several figures.

Figure 1 is a sectional longitudinal view of the apparatus. Fig. 2 is a plan view of the underside of the top plate. Fig. 3 is a sectional view taken on line 3 3 of Fig. 2. Fig. 4 is a side elevation of the apparatus, the handle being inclined to the right. Fig. 5 is a sectional view taken on line 5 5 of Fig. 6. Fig. 6 is a sectional view on line 6 6 of Fig. 5.

The top plate *a* to be placed upon the blade (not shown in the drawing) is furnished at each of its four corners with a tongue *d* which projects diagonally and is normally bent downward to form a corner square *e* which covers the corner of the comb *f*. Thus it will be seen that the projection *d* of the top plate cover the blade corners and the bent form *e* given thereto, will prevent the blade corners from contacting the face of the person who is shaving himself and so there is no risk for cuttings.

The top plate *a* is provided at its inner face with two sockets *b* suitably disposed and with a threaded central rod *c* whereby it is fastened to the handle hub *o*, by causing it to rotate through the nut *n*. The sockets *b* of the top-plate are disposed to register with holes similarly disposed in the blade, and with pins $b_1$ of the comb *f*, which pins pass through the corresponding holes of the blade and fit into the sockets *b* of the top-plate *a* as aforesaid, thus keeping the blade firmly held in place.

The handle of the apparatus is composed of two parts, viz., the hub *o* interiorly threaded, which carries a nut *n* and a ball *m*; a tubular rod *g* with its lower end *i* externally threaded, a spherical socket at its upper end *h* to receive the ball *m* of the hub; and a rod *k* centrally disposed in the tube *g*, said rod terminating in a spindle *l* at one end and in a threaded hub *j* at the other end, whereby it is secured to the rod *g*. Owing to the spherical connection *m n* the handle may be held in any desired inclination, as shown in Fig. 4, to give the blade the most convenient position for shaving. The rod *k* serves to hold the ball *m* at any desired position as by screwing the hub *j* to the end *i* of the rod *g*, the pin *l* will press against the ball *m* and keep it firmly held in place.

During the shaving operation it is necessary to stretch the skin for the blade to be passed over. To this end, a spring wire *p* is placed at a slight distance from the comb teeth $f_1$, so that during the shaving operation it grazes on the face and stretches the part thereof which is to be operated upon. For fixing the wire *p* in place it is bent to form the arms *q*, the ends of which enter into holes in the pins $b_1$ of the comb. In order that the wire *p* may be easily taken out and replaced, its ends are bent so as to form a spring and thus will be retained by their own elasticity in the holes of the pins $b_1$.

My improved safety razor above de-

scribed is of simpler construction than that of the usual apparatus and, as compared therewith, it has many advantages, viz: the top-plate *a* carries no pins passing beyond the outer face of the comb *f;* the projections *d* downwardly bent in the form of corner squares *e*, cover the corners of the blade, thus avoiding the risk of cuttings; the ball-connection *m n* permits to give the handle any desired inclination respectively to the blade, thus facilitating the razor movements, and the wire *p* placed before the comb teeth *f*, maintains the skin quite stretched and much facilitates the operation.

Having thus described my said invention what I claim and desire to secure by Letters Patent, is:

1. In a safety razor, the combination of a handle, one part of the handle being movably connected to the other, means for securing the movable part in a desired position, a comb, a blade, the blade having guide-holes, a top plate having diagonally elongated and downwardly bent corners for covering the upper face and side edges of the blade corners, the top-plate being provided with sockets corresponding with said guide-holes, pins on the inner face of the comb and passing through the holes of the blade and entering the sockets in the top-plate, and means for stretching the skin before the blade, substantially as described.

2. In a safety razor, the combination of a handle one part of the handle being movably connected to the other, means for securing the movable part in a suitable position, a comb, a blade, a top-plate having elongated and downwardly bent corners for covering the upper face and sides of the blade corners, the blade being provided with guide-holes, the top-plate having sockets corresponding with said guide-holes, pins on the inner face of the comb and passing through the guide-holes of the blade and entering the sockets in the top-plate, and a spring wire in front of the comb-teeth and having its free ends bent for inserting into holes in the under side of the comb, substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses.

RAMON CASTELLÓ CARRERAS.

Witnesses:

CONSTANTINO LOPEZ CID,

H. MARTINEZ.

H. J. GAISMAN.

RAZOR BLADE.

APPLICATION FILED APR. 5, 1909.

1,011,938.

Patented Dec. 19, 1911.

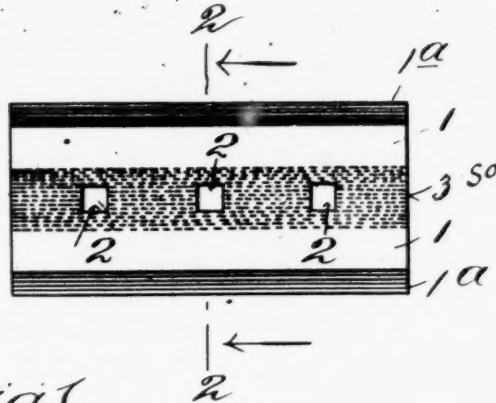



fig. 1.

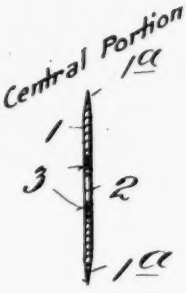



fig. 2.

Witnesses:
C. M. Benjamin
Marie F. Wainright.

Inventor
Henry J. Gaisman.
By his Attorney
T. F. Bourne

# UNITED STATES PATENT OFFICE.

HENRY J. GAISMAN, OF NEW YORK, N. Y., ASSIGNOR TO AUTO STROP COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## RAZOR-BLADE.

1,011,938. Specification of Letters Patent. Patented Dec. 19, 1911.

Application filed April 5, 1909. Serial No. 487,919.

*To all whom it may concern:*

Be it known that I, HENRY J. GAISMAN, a citizen of the United States, and resident of New York city, borough of Manhattan, in the county of New York and State of New York, have invented certain new and useful Improvements in Razor-Blades, of which the following is a specification.

The wellknown thin or wafer-like safety razor blades that are sharpened on opposite edges and bent while in use to stiffen them are usually provided with a plurality of alined holes to receive holding pins and the like, and such blades are customarily tempered throughout to such a high degree that when they are bent or curved in use they are liable to crack or break lengthwise between their opposite cutting edges.

The object of my invention is to provide thin or wafer-like blades with one or more cutting edges which may be tempered to the highest degree desired and yet so arrange said blade that it will not be liable to crack or break between its longitudinal edges when bent or curved, and to this end I provide the blade with the desired temper at its cutting edge or edges and with a centrally or intermediately disposed portion that is either annealed or of such less temper than the edge portion or portions as will permit the blade to bend or to curve between its longitudinal edges without danger of breaking or cracking.

My improved blade may be made by first tempering the entire blade, either before or after its cutting edge or edges are sharpened or honed, and then drawing the temper or annealing the blade between such edges, or the steel of which the blade is made may be tempered on opposite sides along its edge or edges without tempering the intermediate portion, as by covering or protecting such intermediate portion from the effects of heat while the exposed edge portion or portions are being tempered. In such case the cutting edge or edges may be formed either before or after tempering the same.

Reference is to be had to the accompanying drawings forming part hereof, wherein, Figure 1 is a face view of a razor blade embodying my invention, and Fig. 2 is a cross section on the line 2, 2, in Fig. 1.

The numeral 1 indicates a blade which may be of any suitable shape, and which in the instance illustrated is shown of relatively thin or wafer-like material, such as steel, having its opposite edges $1^a$ beveled and sharpened, said blade being shown provided with a plurality of holes 2 centrally disposed to receive holding devices, such as pins or projections of a suitable blade holder or frame. Blade 1 is of such character as to be bent or curved longitudinally between its edges $1^a$. Between the edges $1^a$, as at 3, the blade is annealed or without temper, or it is tempered as much less as desired, than the temper given the longitudinal edge portions on opposite sides of the portion 3, which may be done in the manner before described. A preferable form would be to first sharpen and temper the blade and then anneal or draw the temper at the portion 3. Such portion 3 may be of any suitable width, but as the same coincides with the holes 2 the danger of the blade breaking at or adjacent such holes when bent or curved, or at a part between the sharpened longitudinal marginal sides of the blade, is reduced. Thus, when a blade embodying my invention is pressed between opposing clamping devices in well-known manner, the blade may bend and as the longitudinal portion 3 is of less temper than the tempered marginal portions the danger of the blade breaking is reduced or practically eliminated, and thereby the advantage is afforded that the blade will remain intact and not be liable for parts of the same to shift in its holder, obviating dangers that would result from such shifting. Razor blades without holes may also be made in accordance with my invention.

With thin razor blades made according to my invention, especially those having cutting edges on opposite sides, such as well-known safety razor blades, which are bent while in use by means of opposed curved clamping members between which the blade is held, the blade may bend and remain set or in a curved condition, which affords the advantage that when the blade has been once used and then removed from the holder for cleaning, the blade may be replaced in substantially the same relation, with the edges presented for use in the same position as before, so that such edges may continue in use in the same relation with respect to the guard.

Having now described my invention what I claim is:—

1. A blade made of a relatively thin piece of metal having a cutting edge and tempered at said edge, the metal of the blade adjacent said edge being of less temper than the edge portion to permit the blade to bend back of the edge without danger of fracture.

2. A blade having cutting edges on opposite sides and an intermediate portion between said edges of less temper than said edges to permit the blade to bend between said edges without danger of fracture.

3. A double edged razor blade provided with one or more holes between the edges, a portion of the blade between said edges being of less temper than the edge portions of the blade.

4. A double edge blade provided with a plurality of holes between its cutting edges, the portion of the blade between said edges and at said holes being of less temper than the edge portions.

5. A double edge blade having a plurality of holes between its cutting edges, a portion of the blade between said edges being annealed.

6. A double edge blade having an intermediate portion annealed between the edges.

7. A razor blade consisting of a strip of metal having cutting edges on its opposite parallel edges, the cutting edges being hardened, the center of the strip between the cutting edges and parallel therewith being of metal softer than the cutting edges but integral therewith.

8. A razor blade comprising a strip of metal having hardened cutting edges, and having an integral soft strip through the center of the blade to facilitate its bending.

Signed at New York city, in the county of New York, and State of New York, this 31st day of March, A. D. 1909.

HENRY J. GAISMAN.

Witnesses:
MAX DAVIS,
T. F. BOURNE.

W. E. LAWSON.

SAFETY RAZOR.

APPLICATION FILED JAN. 14, 1913.

1,116,448.

Patented Nov. 10, 1914.

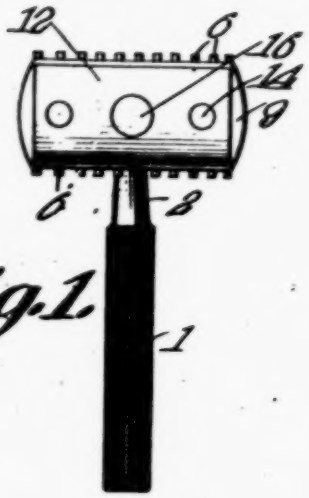



Fig. 1.

Fig. 2.

Fig. 6.

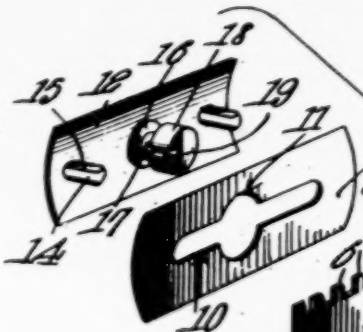


Fig. 4.

Fig. 7.

Fig. 5.

Fig. 3.

Witnesses

J. R. Tomein

F. Willard

W. E. Lawson, Inventor

by C. A. Snow & Co.

Attorneys

# UNITED STATES PATENT OFFICE.

WILLIAM E. LAWSON, OF RAHWAY, NEW JERSEY.

## SAFETY-RAZOR.

1,116,448. Specification of Letters Patent. Patented Nov. 10, 1914.

Application filed January 14, 1913. Serial No. 741,967.

*To all whom it may concern:*

Be it known that I, WILLIAM E. LAWSON, a citizen of the United States, residing at Rahway, in the county of Union and State of New Jersey, have invented a new and useful Safety-Razor, of which the following is a specification.

The present invention aims to provide means for connecting the blade holding head of a safety razor with the handle thereof.

Another object of the invention is to provide novel means whereby the blade holding head may be connected with the handle for rotation, without effecting a separation of the blade holding members of the head, or the blade-holding head from the handle, the construction being such that the cutting edge of the blade may be disposed at an angle to the handle or approximately parallel to the handle, thus permitting the razor, in the one instance, to be used as an ordinary safety razor, and permitting the razor, in the other instance, to be used as a razor of common type, or as a compromise between the two types.

The invention aims, further to improve generally and to increase the utility of, devices of that type to which the present invention appertains.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawing:—Figure 1 shows the invention in front elevation; Fig. 2 is a side elevation; Fig. 3 is a longitudinal section, the handle being rotated through an angle of 90 degrees from the position shown in Fig. 1; Fig. 4 is a perspective showing the several constituent parts of the razor separated; Fig. 5 is a fragmental longitudinal section of the head engaging portion of the handle; Fig. 6 is a perspective showing a slight modification in the blade holding head; and Fig. 7 is a longitudinal sectional detail showing a slight modification in the socket portion of the handle.

In carrying out the invention there is provided a handle 1 terminating in a laterally extended, tapered neck 2 terminating in a socket 3. A lug 4 or a screw $4^a$ as shown in Figs. 5 and 7 projects into the interior of the socket 3.

The blade carrying head of the razor comprises a flat guard provided upon its opposite longitudinal edges with teeth 6, the guard 5 being of unequal transverse dimensions. The guard 5 is equipped intermediate its ends with an opening 7 and adjacent the ends of the guard, other openings 8 are formed. The opening 7 is of slightly less diameter than the diameter of the socket 3, so that the socket 3 may constitute an abutment for the guard.

The blade 9 preferably is a double edged blade and may be equipped with a longitudinal slot 10 provided intermediate its end with an enlargement 11, the enlargement being located opposite to the opening 7 in the guard 5, when the parts are in coöperating relation. The precise manner of forming the openings in the blade 9 may be varied without jeopardizing the utility of the invention.

The blade carrying head of the razor further includes a transversely curved, resilient cap 12 provided with projecting pins 14 which, if desired, may be flattened upon opposite sides, as indicated at 15. Projecting from the cap 12 between the pins 14 is a boss 16 which is grooved circumferentially to form a neck 17 and to define a head 18 located at the extremity of the neck. The head 18 is provided with a transverse slot 19. The slot 19 opens toward one end of the cap 12 and opens transversely of the shorter dimension of the head. When the screw $4^a$ is used the groove 25 only is employed the slot 19 being omitted.

In practical operation, the pins 14 of the cap 12 are engaged in the slot 10 of the blade 9, the boss 16 being located adjacent the enlargement 11. The pins 14 enter the openings 8 in the guard 5, and the head 18 of the boss 16 extends beyond the opening 7 in the guard. The head 18 enters the socket 3 upon the handle 1. The lug 4 which is located within the socket 3 is adapted to traverse the slot 19, then by rotating the handle 1, or by rotating the blade carrying head, the lug 4 will lock behind the head 18 and thus hold the guard 5 and the cap 12 in clamping relation upon the blade 9. During this operation, the resilient, transversely curved cap 12 will be flattened out slightly, but the blade 9 will not be curved, the blade

9 resting against the flat guard 5 which, in its turn, is supported by the end of the socket 3. The flattening of the cap 12 produces a tension which holds the guard and the blade in any desired position against rotation. If desired, the blade 9 may be magnetized so as to adhere to the guard 5, to the end that when the guard 5 and the cap 12 are separated, the blade 9 will not drop away.

Attention is directed to the fact that the blade carrying head may be rotated upon the handle 1 so as to assume any desired angle with respect to the handle which the user may require. This operation takes place without causing a separation of the guard 5 and the cap 12, because the lug 4 is continuously engaged behind the head 18.

Attention is directed to the fact that the slot 19 does not open toward either of the longer edges of the cap 12, neither does the slot 19 open toward either of the cutting edges of the blade 9. As a consequence, either of the cutting edges of the blade may be disposed inwardly and may be disposed transversely of the handle 1, as shown in Fig. 1, to permit the razor to be used after the manner of a safety razor. Further, owing to the location of the groove 19 it is possible to rotate the blade holding head until the cutting edge of the blade 9 lies approximately parallel to the handle 1. Under such circumstances, the razor may be used after the manner of an ordinary razor of the common and well known type.

It is obvious that the foregoing advantages may be secured by shifting the slot 19 and the lug 4 so that the lug is not opposite the slot when either of the cutting edges of the blade lie parallel to the handle.

Having thus described the invention, what is claimed is:—

In a safety razor, coöperating parts comprising a curved resilient cap and a handle, one of which coöperating parts is provided with a socket having a projection, the other of which coöperating parts is provided with a stud which is received within the socket, the stud having a superficial transverse groove receiving the projection movably to permit the cap to be rotated with respect to the handle; and a guard supported by the handle, the edges of the cap coöperating yieldably with the guard to hold the projection in adjusted positions in the groove.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WILLIAM E. LAWSON.

Witnesses:

FRED W. COLES,

C. COOVER.

N. SHURE.

RAZOR.

APPLICATION FILED MAY 12, 1910.

1,124,668. Patented Jan. 12, 1915.

Fig. 1

Fig. 3

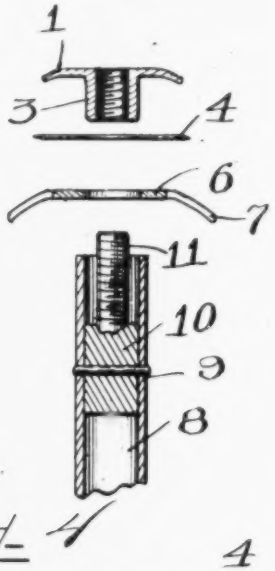



Fig. 4

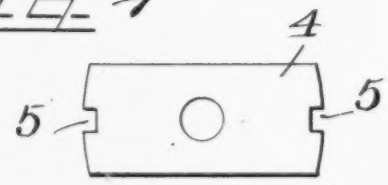



Fig. 2

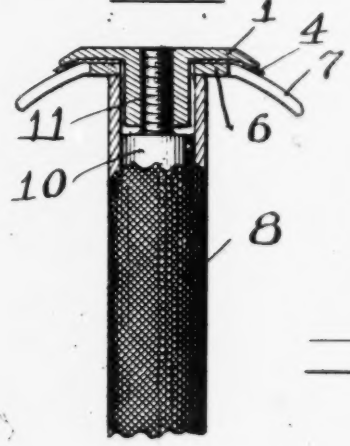



Fig. 5

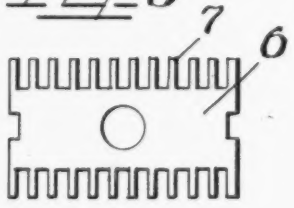
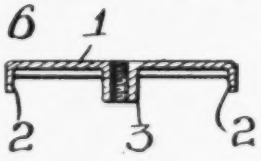



Fig. 6




Witnesses
J. W. Angell
H. E. Hamal

by

Inventor
Nathan Shure
Charles W. Lees
Atty.

# UNITED STATES PATENT OFFICE.

NATHAN SHURE, OF CHICAGO, ILLINOIS.

## RAZOR.

1,124,668. Specification of Letters Patent. Patented Jan. 12, 1915.

Application filed May 12, 1910. Serial No. 560,935.

*To all whom it may concern:*

Be it known that I, NATHAN SHURE, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Razors; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to safety razors, and has for its object to provide certain improvements in the construction of the same as will be hereinafter more definitely pointed out and claimed, reference being had to the accompanying drawing, in which:

Figure 1 is a side elevation of a device embodying my invention. Fig. 2 is an enlarged view with part in vertical section and with part of the handle omitted. Fig. 3 is an enlarged sectional view showing the parts separated. Fig. 4 is a plan view of the cutting blade. Fig. 5 is a plan view of the guard. Fig. 6 is a longitudinal section of the base member.

As shown in the drawings: 1 indicates the base member which is flat for the greater part of its width, and has the longitudinal edges curved at a suitable angle. Secured centrally at the ends of the base are inturned lugs 2, and an internally threaded, inwardly directed boss 3 is secured centrally to said base. A flexible blade 4, having two cutting edges is provided which is apertured centrally to receive the lug 3, of the base therethrough, and is provided with central notches 5, at the ends to receive the lugs of the base member therein. A guard 6, is provided which is centrally apertured and notched at the ends to receive the boss 3, and lugs 2, of the base member 1, therethrough. Said guard is provided with teeth 7, which project well beyond the cutting edges of the blade to protect the face of the user from injury. The guard is slightly flattened between the teeth and said teeth are given a curvature or inclination of approximately the same degree as the edges of the base member 1. A handle 8, is provided, which is externally milled or roughened to prevent slipping of the hand in attaching or removing the same. Secured in said handle by means of a transverse pin 9, is a block 10, projecting from which is a threaded member 11, of less diameter adapted to thread in the boss 3, to firmly clamp the parts together.

With the construction shown, the number of parts are reduced to a minimum, and may be assembled with ease and quickness.

Owing to the fact that the base member and guard are flat intermediate their ends, the blade is clamped flat therebetween, and the edges only flexed or curved, directing the cutting edge in the most desirable position for shaving, which adjustment is difficult to attain where the guard and base are curved. At any time a dull blade may be replaced by a sharp blade by simply removing the handle, separating the parts, inserting the sharp blade and screwing up the handle.

Many details of construction may be varied, and numerous changes may be made without departing from the principles of this invention, and I therefore do not desire to limit myself otherwise than necessitated by the prior art.

I claim as my invention:

In a razor, a base member flat intermediate its longitudinal edges and having said longitudinal edges curved, a guard formed into a flat surface coextensive in width with the flat portion of said base member, curved teeth secured to said guard and registering with the curved longitudinal edges of said base member, a resilient blade secured between said base member and guard, a handle, and means for clamping the base member and guard together and for flexing the longitudinal edges of the blade.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

NATHAN SHURE.

Witnesses:

LAWRENCE REIBSTEIN,

J. W. ANGELL.

R. MARX.

SAFETY RAZOR.

APPLICATION FILED JAN. 9, 1913.

1,169,665. Patented Jan. 25, 1916.

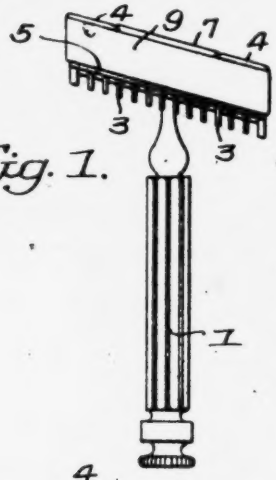



Fig. 1.

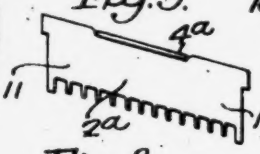



Fig. 9.

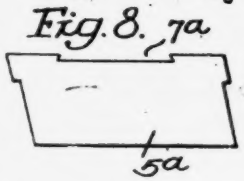



Fig. 8.

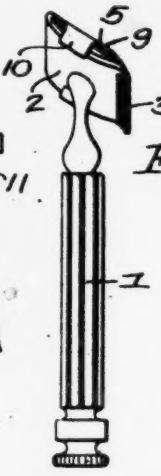



Fig. 2.

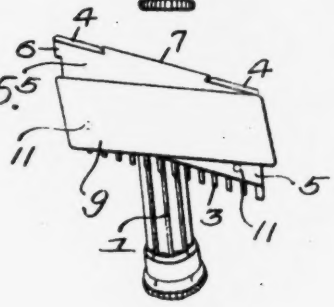



Fig. 5.

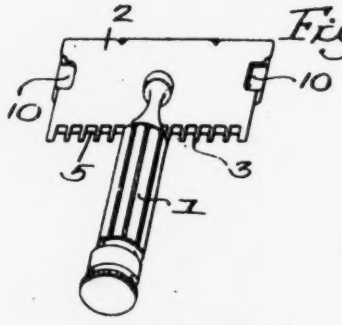



Fig. 3.

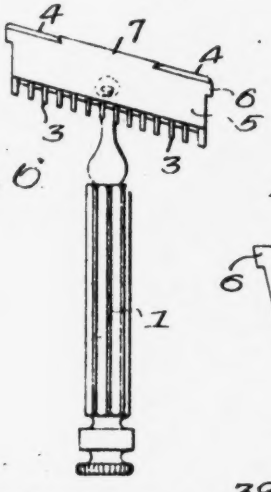



Fig. 6.

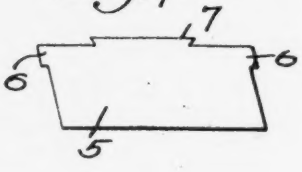



Fig. 7.

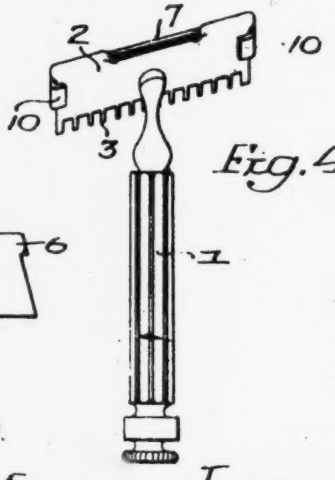



Fig. 4.

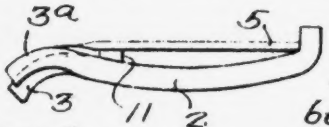



Fig. 10.

Witnesses—
William T. Nase.
Wills A. Burrows.

Inventor—
Richard Marx.
by his Attorneys.
Howson & Howson.

# UNITED STATES PATENT OFFICE.

RICHARD MARK, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO JOHN B. STETSON, OF ASHBOURNE, PENNSYLVANIA.

## SAFETY-RAZOR.

1,169,665. Specification of Letters Patent. Patented Jan. 25, 1916.

Application filed January 9, 1913. Serial No. 740,985.

*To all whom it may concern:*

Be it known that I, RICHARD MARK, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Safety-Razors, of which the following is a specification.

One object of my invention is to provide a safety razor of the utmost simplicity of construction, which in addition to being relatively inexpensive to manufacture, shall be provided with a relatively uncomplicated device for positioning and releasing the razor blade.

Another object of the invention is to provide a razor whose blade holder shall consist of but two relatively movable parts, one of which is formed to hold the blade in the proper position, while the other is being applied.

These objects and other advantageous ends I secure as hereinafter set forth, reference being had to the accompanying drawings, in which,

Figures 1 and 2 are respectively a front and a side elevation of a safety razor constructed according to my invention; Figs. 3 and 4 are respectively an inverted plan and a rear elevation of the razor; Fig. 5 is a plan of the razor showing the blade retaining plate partly removed; Fig. 6 is a front elevation showing the handle with the guard plate and a blade mounted on the latter; Fig. 7 is a plan of one of the razor blades; Figs. 8 and 9 are plans illustrating modified forms of the blade and guard plate, and, Fig. 10 is an enlarged side elevation of the guard shown in Fig. 9 illustrating a blade in position thereon.

In Figs. 1 to 7 of the above drawings, 1 represents a handle to the top of which is rigidly fixed a blade receiving guard plate 2 of rhomboidal outline and inclined forwardly as well as downwardly toward one side. Said blade holder at its forward edge is provided with a series of guard teeth 3 projecting in planes substantially parallel to a plane passing through the center line of the handle 1. As shown in Fig. 2, this guard plate is upwardly concave and as shown in Fig. 5 at its rear edge is provided with two upwardly turned lugs 4.

The blades employed with my razor have a substantially rhomboidal outline, as indicated at 5 in Fig. 7 and in addition to lugs 6 projecting at opposite ends of one of its edges, each blade has on the same edge a rearward projection 7 which is undercut at its ends as indicated at 8. This projection is of such a length as to closely fit between the lugs 4 of the supporting guard plate 2 and as shown in Figs. 5 and 6, said lugs are beveled or slightly inclined at their adjacent ends to fit into the undercut portions 8 in such manner as to prevent the withdrawal of a blade in a plane substantially parallel to and immediately adjacent that of the guard plate.

For retaining the plate in operative position I provide a cover plate 9 having an elongated rhomboidal outline and provided at each end with a pair of clips 10 whose ends are bent toward each other in such manner as to frictionally engage the under side of the guard plate and also strike the lugs 6, although with the projection 7 and its co-acting holding lugs 4 which likewise serve to limit the upward movement of said cover plate 9, said lugs 6 may be omitted without departing from my invention.

When it is desired to mount a blade in the holder, it is laid on the upper face of the guard plate 2 with its projection 7 extending between the lugs 4 so that it is held from moving in a plane substantially parallel to that of said plate. While so positioned, the retaining plate 9 is applied by engaging one of its clips 10 with one end of the guard plate, thus bringing said first named plate into the position shown in Fig. 5. Thereafter it is moved from this position into a position in which it lies fairly over the guard plate with its sides parallel to the sides thereof as well as to those of the blade and with the second clip 10 frictionally holding to the under side of the guard plate. In order to remove a blade, the operator places his first and second fingers against the rear face of the guard plate on either side of the handle and with his thumb, in engagement with the retaining plate 9, slides this latter off of the blade and out of engagement with the guard plate, thus permitting the blade to be taken from the latter by an upward movement.

With a razor constructed as above described, the blade may be conveniently applied to or removed from the holder, without danger of the operator being cut since after said blade has once been placed in the

position shown in Fig. 6, with its projection 7 held between the lugs 4, it cannot easily be dislodged but is properly held in the correct position until the retaining plate is applied as above described. If desired, I may provide the guard plate 2 with two small projections 11 as indicated in Fig. 5 immediately adjacent the two ends of that edge having the guard teeth 3, the purpose of these being to provide a two point support for the blade body in the vicinity of its cutting edge. It will be noted that the projection 7 of the blade has a width substantially equal to the thickness of the lugs 4 of the guard plate 2; it being immaterial whether said projection fits between two lugs on said plate or whether, as shown in Figs. 8 and 9, said blade $5^a$ has a recess $7^a$, one edge of which is undercut at the ends for the reception of a single lug $4^a$ on the guard plate $2^a$.

From Fig. 10 it will be seen that when the parts are assembled, the ends of the cutting edge of the blade rest upon the endmost guard teeth $3^a$ of the series and these are not only slightly longer than the teeth 3 between them but are curved upwardly so that said cutting edge is spaced away from and unsupported by said intermediate teeth. The projections 11, however, engage the blade body just back of the cutting edge so as to positively support it when it is pressed toward the plate 2 by the retaining plate 9. Obviously the lengths of these projections may be very accurately fixed during manufacture to secure the desired adjustment of the razor.

I claim:—

1. The combination in a safety razor, of a handle; a guard plate mounted thereon having guard teeth at one edge, two portions of the opposite edge of said plate being turned up and having their adjacent ends beveled; a blade having a projection from the edge opposite its cutting edge provided with undercut ends fitting the beveled ends of the turned up portions on the guard plate and also having end projections; with a cover plate for holding the blade in place having end clips engaging the blade projections and abutting on the turned up portions of the guard plate.

2. The combination in a safety razor, of a handle, a guard plate mounted thereon having guard teeth on one edge and a portion of its opposite edge turned up; a blade formed to have holding engagement with said turned up edge portion and provided with laterally projecting lugs at its opposite ends; with a cover plate having clips at its ends formed to frictionally engage the guard plate and abutting on the laterally projecting lugs of the blade when the latter is in its operative position.

3. A razor blade having an undercut projection on its rear edge and formed with projecting lugs on the rear portions of its opposite ends respectively.

4. A razor blade of rhomboidal outline having a projection at its back edge formed with undercut ends; with lugs at the opposite ends of the blade adjacent its rear edge.

5. The combination in a safety razor, of a handle; a guard plate mounted thereon having guard teeth at one edge and provided with two upturned portions at its opposite edge; a blade abutting said upturned portions and provided with a projection extending between the same, said blade also having projections at its ends adjacent its rear edge; with a cover plate slidably engaging the blade and having end clips respectively engaging opposite ends of the guard plate, said cover plate also abutting on the upturned edge portions of the guard plate and the clips positively engaging the end projections of the blade to hold the same in place.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

RICHARD MARX.

Witnesses:
WILLIAM E. BRADLEY,
WM. A. BARR.

C. BALLREICH.

SAFETY RAZOR.

APPLICATION FILED MAR. 29, 1912. RENEWED MAY 31, 1917.

**1,246,219.**

Patented Nov. 13, 1917.

Fig. 1.

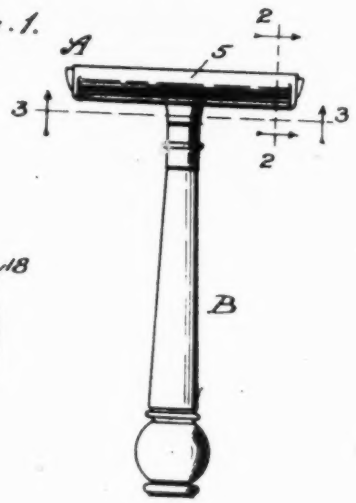



Fig. 6.

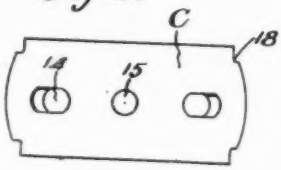



Fig. 5.

Fig. 2.

Fig. 3.

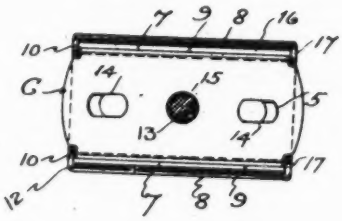
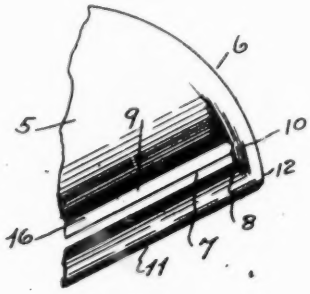



Fig. 4.




WITNESSES:

F. H. Drury

Mabel Reynolds

INVENTOR

Charles Ballreich

James Addington BY Amos Seibold

ATTORNEY

# UNITED STATES PATENT OFFICE.

CHARLES BALLREICH, OF PUEBLO, COLORADO.

## SAFETY-RAZOR.

1,246,219. Specification of Letters Patent. Patented Nov. 13, 1917.

Application filed March 29, 1912, Serial No. 687,073. Renewed May 31, 1917. Serial No. 171,816.

*To all whom it may concern:*

Be it known that I, CHARLES BALLREICH, a citizen of the United States, residing at Pueblo, in the county of Pueblo and State of Colorado, have invented new and useful Improvements in Safety-Razors, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention relates to improvements in safety razors and has for its object the production of a device in which the razor blade is firmly held without danger of the corners cutting the user.

A further object is the production of a device in which the guard is formed integral with the holder and the relative position of the blade with respect thereto is regulated by the movement of the handle.

A further object is the production of a device in which a blade is used of such a thickness as not to require external support to give rigidity to its cutting edge.

A further object is the production of a device in which the required flexibility of the blade is attained without drawing the metal to such a degree of thinness as to require external support.

A further object is the production of improved means for preventing the lateral movement of the blade, thereby holding it rigidly within the holder.

A further object is the production of a device utilizing a minimum number of parts and one that can be cheaply constructed and one not liable to get out of order.

These and such other objects as are hereinafter set forth are obtained by my device, an embodiment of which is illustrated in the accompanying drawings, in which—

Figure 1 represents a front elevation of my device;

Fig. 2 represents an enlarged sectional view on the line 2—2 of Fig. 1 looking in the direction opposite to that indicated by the arrows;

Fig. 3 represents a sectional view on the line 3—3 of Fig. 1 looking in the direction indicated by the arrows;

Fig. 4 represents an enlarged perspective of a portion of my device;

Fig. 5 is an end view of the combined blade holder and guard portion of my device; and

Fig. 6 is a plan view of the blade used in my device.

Referring now to the drawings, my improved razor comprises only three parts, a combined holder and guard A, a handle B and a razor blade C.

The holder A comprises a curved backing plate 5 having at its opposite sides the ends curved downwardly more abruptly, as shown at 6, and having oppositely disposed cut away portions or slits 7 between the outer edge or guard bar 8 and the center of the plate. The portions of the plate A forming the upper sides of the slits are acute-angled, as shown at 9.

At the four corners of the plate 5 the metal is continued forming supports 10 for the bars 8 and closing the ends of the slits 7. These extensions are in a plane above the cutting edge of blade 16 and serve to guard the corners of the blade, making it impossible for said corners to come into contact with the face and cut the same. The outer edge 11 of the bar 8 is made smooth and rounded and the corners 12 are also rounded so that the razor may slip smoothly over the face.

The holder is provided with a central screw 13 adapted to pass through the central hole 15 in the blade C. This blade is formed from steel of a sufficient thickness so as not to require external support to give rigidity to its cutting edge. I attain the desired flexibility of the blade by cutting out a portion of the interior of the material, as indicated by the holes 14, the size and shape of which may be varied, depending on the thickness of the blade used and the degree of flexibility desired. As the greatest degree of flexibility is required to enable the blade to be pressed on the inside of the holder, I find the best results are obtained by cutting away the portions in such a manner as to leave oblong openings with rounded corners on either side of the central opening and substantially midway between the central openings and the ends of the blade. This object may also be attained by thinning the metal of the blade medially parallel with the cutting edges, or in any other suitable manner.

When the blade C is slipped in place the edges project through the slits as shown at 16, the ends of the blades adjacent the corners striking against four shoulders 17 formed on the inner face of the holder at

each corner and at the ends of the slits. To this end the corners of the blade should preferably be notched as shown at 18 in Fig. 6, to aid in positioning the blade against the shoulders 17. The ends of the blades are adapted to fit snugly against the inner faces of the shoulders so as to hold the blade rigidly in place.

I may, if I so desire, extend the shoulders 17 down below the lower edge of the bar 8, in which case it will be impossible for either edge of the blade C to come into contact with the bar 8 at any point and the blade will be perfectly positioned by coöperation of the shoulders 17 and the notches 18 prior to reaching the level of the bars 8, thus avoiding any possible dulling of the cutting edge. I have found in practice, however, that if, in placing the blade, its edges do come into contact with the bar 8, due to the blade not being inserted parallel with the bars, such contact does not tend to dull the blade in any appreciable degree; and, furthermore, such contact occurs only at the extreme corners of the blade, which part of the blade is used but little, if any, due to the corners being guarded by the extensions 10. For these reasons I prefer the form of my invention shown in the drawings.

It will be noted by reference to Fig. 2 that the edge of the blade extends beyond the acute-angled edge 9 of the plate so as to present a cutting edge for use.

While I have shown the blade as being held in place by means of the central screw forming part of the handle and shoulders of the holder, I may adopt other means to prevent the cutting edges of the blades from coming in contact with the bars when the blades are slipped in place.

The handle B is provided at its end with a threaded opening or socket adapted to receive the screw 13 and when the handle is screwed home the face of the end engages the face of the razor blade and by regulating the pressure of the face on the blade one may regulate the distance the edge of the blade projects through the slit, thereby making it possible to adjust the razor so as to secure a close or a smooth shave.

Attention is also particularly called to the purpose of the guard bars 8 which are preferably, but not necessarily, formed integral with the plate. These smooth bars serve the purpose of the teeth of the ordinary safety razor but in a much better manner smooth the way in the same manner as though the skin were stretched by the hand.

I prefer to use blades of comparatively thick metal as by its use the vibrations incident to the use of thin metal are obviated. This is quite an important feature in my invention as in the use of thin blades the vibration of the blade cuts the beard unevenly, giving what may be termed a poor shave. It also, on account of its uneven cut, causes the face to smart.

By the use of a blade of the character described I provide a blade that is susceptible of stropping, which is also a very essential element, as it is a well known fact that no edge of any kind on the blade will give as good a second or third shave as the first shave unless the blade is stropped before subsequent use.

Heretofore in the use of thin blades, it has been necessary to support the blade itself in order to give rigidity to its cutting edge while in use and also to prevent vibration. Blades of this character are also so thin as to be useless after one or two shaves and being too thin to be stropped must be thrown away. Also, even the second shave with a thin blade of this character is not as good as the first shave, as heretofore set forth. By the use, however, of my improved blade with a flexible portion the requisite degree of flexibility can be readily secured without sacrificing any of the rigidity of the blade, thus insuring a perfect shave.

My device is also especially valuable to persons having wrinkled skin, as the bar glides easily over the wrinkles and permits an angular or sliding movement, such as is used with the old style of razor.

With the ordinary safety razor when shaving against the grain the teeth catch in the folds or wrinkles of the face or neck, but with this device no such action can take place, thus making it possible to shave against the grain on any portion of the face or neck.

It will also be noted that the razor proper consists of only two pieces besides the blade that can be easily kept clean and quickly assembled and disassembled. This is a very valuable feature as it is a well known fact that while shaving the lather and beard collects on the under side of the blade and this can be removed as often as desired by simply dipping the razor in water, making the razor practically clean, while with other forms in use the lather and beard collects between the teeth and between the razor blade and the upper and lower plates, making it necessary to take the razor apart in order to clean it.

As the razor is constructed, a blind man can put it together, shave himself and take it apart without danger of cutting himself. So, also, it can be used on trains or boats regardless of the shaking of the trains or boats as there is no chance whatever of cutting oneself.

I do not limit myself to the present form illustrated as I am aware that other forms

can be made within the scope of my invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is—

1. In a safety razor, the combination with an arched blade support having slits near its straight edges and a handle attaching stud projecting from its central portion, of a normally flat, centrally perforated blade engaging said stud and projecting into said slits, and a handle coöperating with said stud and having a shoulder engaging said blade whereby said blade is secured in position.

2. In a safety razor, the combination with an arched blade support having slits near its straight edges and a handle attaching stud projecting from its central portion, of a normally flat, centrally perforated blade engaging said stud and projecting into said slits, the parts being so proportioned that the ends of said slits guard the corners of said blade, and a handle coöperating with said stud and having a shoulder engaging said blade whereby said blade is secured in position.

3. In a safety razor, the combination with an arched blade support having slits near its straight edges and a handle attaching stud projecting from its central portion, of a normally flat, centrally perforated blade engaging said stud and projecting into said slits, the parts being so proportioned that the corners of said blade always lie below the end portions of said slits and are guarded thereby, and a handle coöperating with said stud and having a shoulder engaging said blade whereby said blade is secured in position.

4. In a safety razor, the combination with an arched blade support, having slits near its straight edges, shoulders depending from its under side adjacent the ends of said slits and a handle attaching stud projecting from its central portion, of a normally flat, centrally perforated blade engaging said stud and projecting into said slits, said blade being provided with notches at its corners for engaging said shoulders and positioning said blade, and a handle coöperating with said stud and having a shoulder engaging said blade whereby said blade is secured in position.

5. In a safety razor, the combination with an arched blade support having slits near its straight edges and a handle attaching stud projecting from its central portion, of a normally flat, centrally perforated blade of sufficient thickness to give rigidity to its cutting edge, said blade engaging said stud and projecting into said slits, and a handle coöperating with said stud and having a shoulder engaging said blade whereby said blade is secured in position.

6. In a safety razor, the combination with an arched blade support having slits near its straight edges and a handle attaching stud projecting from its central portion, of a normally flat, centrally perforated blade of sufficient thickness to give rigidity to its cutting edge, said blade being so proportioned as to permit of flexing and to project into said slits, and a handle coöperating with said stud and having a shoulder engaging said blade whereby said blade may be flexed to adjust the degree of its protrusion into said slits and may be secured in position.

7. In a safety razor, the combination with an arched blade support having slits near its straight edges and a handle attaching stud projecting from its central portion, of a nor-normally flat, centrally perforated blade of sufficient thickness to give rigidity to its cutting edges and projecting into said slits, the parts being so proportioned that the ends of said slits guard the corners of said blade and that the blade is capable of being flexed, and a handle coöperating with said stud having a shoulder engaging said blade whereby said blade may be flexed to adjust the degree of its protrusion into said slits and may be secured in position.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

CHARLES BALLREICH.

Witnesses:
CHAS. H. WILLIAMS,
CHAS. W. O'DONNELL.

176

H. B. HARTMAN.

SAFETY RAZOR.

APPLICATION FILED FEB. 24, 1916.

1,247,266.

Patented Nov. 20, 1917.

2 SHEETS—SHEET 1.

FIG. 1.

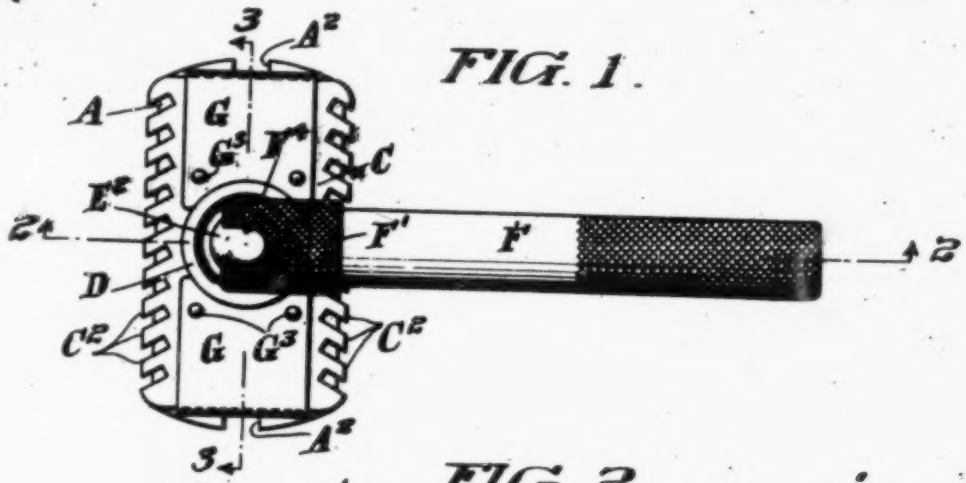



FIG. 2.

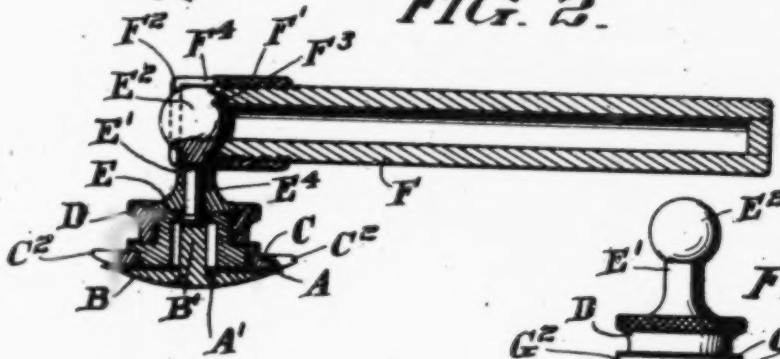



FIG. 5.

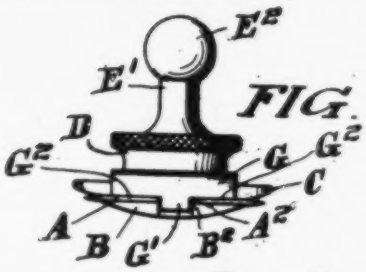



FIG. 3.

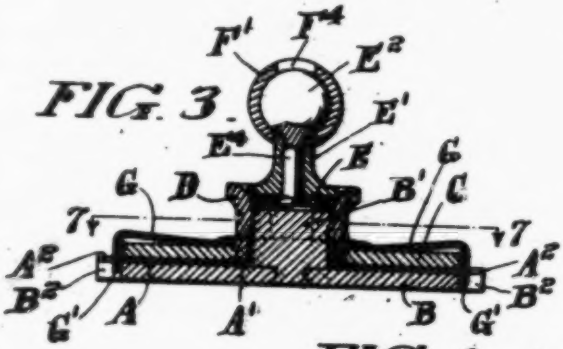



FIG. 6.

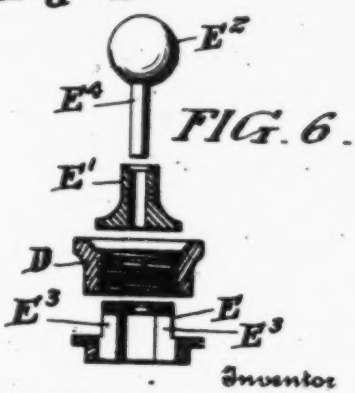
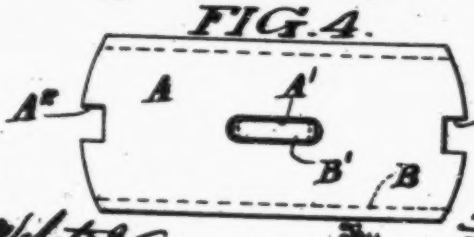



FIG. 4.




Witness

Daniel Webster Jr.

Inventor

Harry B. Hartman

By Francis T. Chamberlain

Attorney

H. B. HARTMAN.

SAFETY RAZOR.

APPLICATION FILED FEB. 24, 1916.

1,247,266.

Patented Nov. 20, 1917.

2 SHEETS—SHEET 2.

FIG. 10.

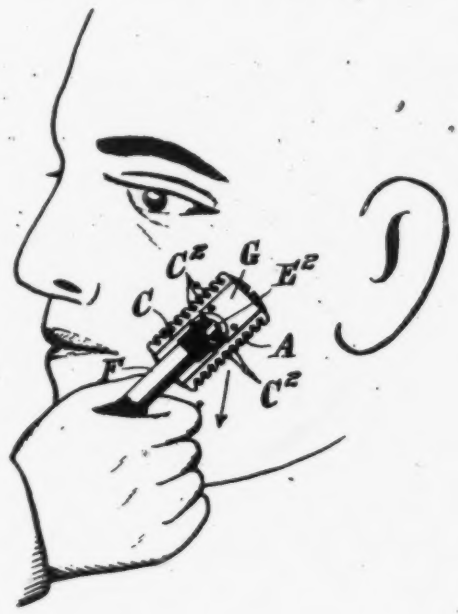



FIG. 11.

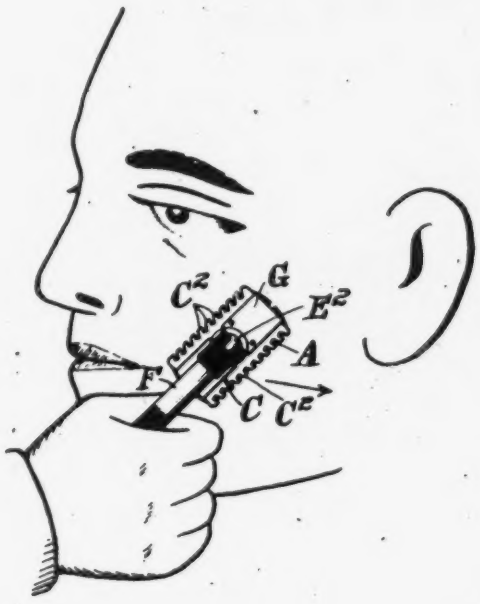



FIG. 8.

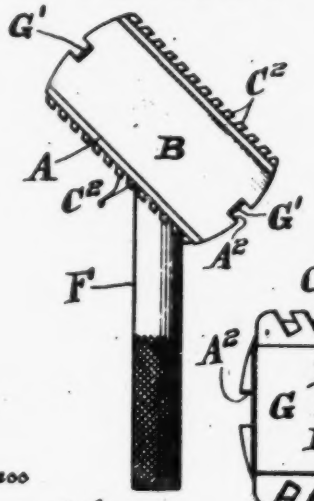



FIG. 9.

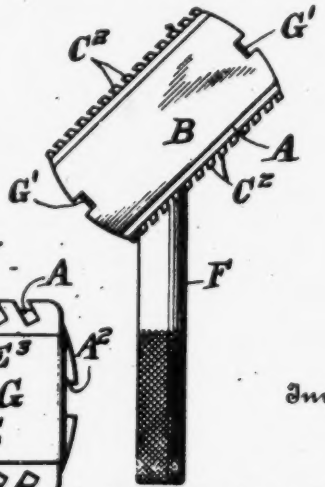



FIG. 7.

Witness

Daniel Webster Jr.

Inventor

Harry B. Hartman

By Francis T. Chamberlain

his Attorney

# UNITED STATES PATENT OFFICE.

HARRY B. HARTMAN, OF SCOTTDALE, PENNSYLVANIA.

## SAFETY-RAZOR.

1,247,266. Specification of Letters Patent. Patented Nov. 20, 1917.

Application filed February 24, 1916. Serial No. 80,111.

*To all whom it may concern:*

Be it known that I, HARRY B. HARTMAN, a citizen of the United States of America, and resident of Scottdale, in the county of Westmoreland and State of Pennsylvania, have invented a certain new and useful Improvement in Safety-Razors, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My present invention relates to safety razors and particularly to safety razors of the type in which a double edged blade is detachably secured in a holder or clamping device to which an operating handle is attached.

The primary object of my invention is to provide a razor of the type referred to which may be readily adjusted to vary the relation between the active cutting edge and the hand of the user so that the razor may be held in the various ways in which different persons may need or prefer to hold the razor to get the best results, and in particular to facilitate the use of the razor in such manner as to insure an angling impact of the cutting edge against the beard to be cut in the various adjustments of the razor. For this purpose I form the blade holder of the razor with a set of comb or guard teeth adjacent each cutting edge and inclined at an acute angle thereto, oppositely inclining the two sets of comb teeth to the direction of the cutting edges of the blade, and I connect a handle to the center of the blade holder by means permitting a practically universal adjustment of the handle so that the latter may extend at any angle with reference to the direction of the cutting edges and of the inclined comb teeth.

Further objects of my invention are to provide improvements in the holder to facilitate insertion and removal of a razor blade, and the adjustment of the razor to effect a closer or less close shave.

The various features of novelty which characterize my invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of the invention, however, and the advantages possessed by it, reference should be had to the accompanying drawings and descriptive matter in which I have illustrated and described a preferred embodiment of my invention.

Of the drawings:

Figure 1 is a plan view of a complete razor;

Fig. 2 is a sectional elevation, the section being taken on the line 2—2 of Fig. 1;

Fig. 3 is a section taken on the line 3—3 of Fig. 1;

Fig. 4 is a plan view of the blade with the front holder plate in place beneath it;

Fig. 5 is a partial end elevation of the razor;

Fig. 6 is a view of the parts forming the central post of the razor holder and the blade clamping nut mounted thereon;

Fig. 7 is a sectional plan taken on the line 7—7 of Fig. 3;

Fig. 8 is an elevation of the razor adjusted for one condition of use;

Fig. 9 is a similar view showing the razor adjusted for another condition of use;

Fig. 10 is a view illustrating the use of the razor in a third adjustment; and

Fig. 11 is a view taken similarly to Fig. 10, but with the razor in still another adjustment.

In the drawings: A represents the double edged razor blade which so far as certain features of my invention are concerned, may be either flexible or rigid, but preferably is of such thickness, as indicated in the drawing, as to be comparatively rigid rather than flexible. The razor blade is formed with a central slot A′ through which loosely passes the flattened stud B′, riveted or otherwise permanently attached to, and projecting from the front plate B of the razor. The front plate B may well be made out of metal stamped into shape and is formed with a flat upper side against which one flat side of the razor blade rests in the assembled condition of the razor. The stud B′ passes through a central aperture formed in the back plate or guard member C of the razor and in the assembled condition of the razor the parts are clamped together by means of a nut D, the threads of which engage threads formed for the purpose on the edges of the flattened stud B′.

At each of its opposite side edges the guard plate or member C is formed with a set of comb teeth $C^2$. These teeth are beveled away from the plane of the razor blade in the usual manner and are inclined at an acute angle to the cutting edge. As shown, the two sets of comb teeth are oppositely inclined to the center line of the razor.

In the preferred construction illustrated the nut D is swiveled on a central post rigidly secured to the back plate C and formed of three parts, E, E′ and E². The part E is a cup shaped member expanded at its rim to rigidly secure the part in a central aperture formed in the member C. The diameter of the body of the cup shaped member E is slightly less than the width of the stud B′, and the member is slotted at E³, as shown best in Fig. 7, to permit the threaded edges of the stud B′ to project into contact with the threads of the clamping nut D. The post member E′ forms a spacer separating the ball head of the member E² from the part E of the central post. The member E² comprises a stem E⁴ passing through the spacing member E′ and through a central aperture in the otherwise closed end of the member E, and forming a rivet by means of which the three parts, E, E′ and E² of the central post are rigidly secured together. The enlarged lower end of the spacing member E′ forms a flange engaging the adjacent end of the clamping nut D and preventing axial displacement of the latter.

The central post rising from the back plate C is connected to the handle F by a ball and socket joint permitting a practically universal adjustment of the handle F relative to the razor holder. As shown, the handle comprises a socket member F′ having an inturned lip F² forming a spherical seat for the ball portion of the member E², the internal diameter of this lip being appreciably less than the diameter of the ball. At its other end the member F is internally threaded to receive the tubular body of the handle. The edge F³ of the inserted end of the handle body coöperates with the lip F² to form clamping edges engaging the ball portion of the post member E² at opposite sides of the center of the ball to thereby rigidly secure the handle to the holder. The socket member F′ is formed with one or more, and preferably as shown, two axial slots F⁴ which are diametrically opposed to one another and into either of which the neck of the central post formed by the spacing member E′ may extend, as shown in Figs. 1, 2 and 3.

The blade A is accurately centered and alined with respect to the holder and particularly the comb teeth thereof, by means of springs G secured as by rivets G³ to the upper side of the back plate C adjacent the center of the latter, and extending beyond the ends of the latter where they are downturned. The down-turned end of each spring is formed with a teat or projection G′ which passes through and snugly engages the side walls of a notch A³ formed in the corresponding end of the razor blade and are received in notches or recesses B³ formed in the front plate B of the blade holder. Each spring is formed with shoulders G² which engage the upper side of the blade at each side of the corresponding notch A³.

In adjusting the razor for use, the clamping nut D is adjusted to hold the blade at the proper distance from the guard plate C, the parts being loosened up more for a close shave than for one less close. In any operative adjustment of the nut D the blade is held snugly against its seat on the front plate B by the shoulders G² of the springs G, and the latter through the engagement of their projections G′ with the side walls of the notches A³ hold the blade so that its cutting edges are at the proper distance from the side edges of the latter. To set the handle F at the proper angle the body of the latter is rotated to loosen the ball and socket connection between the handle and the holder and the handle may then be moved into the desired position relative to the holder, after which the ball and socket joint is again tightened up by rotating the body of the handle about its own axis thus again to rigidly connect the handle to the holder. When the neck of the central post is entered in one of the slots F⁴, the handle F may extend in any direction in a plane at right angles to the central post and may be swung transversely to this plane through an arc of 180°, or a trifle more. A practically universal adjustment of the handle relative to the holder may thus be secured.

The most satisfactory adjustment of the handle angularly about the central post and with respect to the plane of the blade varies greatly with different users, however, and I consider it a distinct advantage of my razor that it may be quickly adjusted as needed to accommodate the physical characteristics, habits or whims of any user.

For what may be called the normal use by a right handed user the blade will be adjusted generally as shown in Fig. 9 in shaving the right side of his face, and will be adjusted generally as shown in Fig. 8 for the use of the same user in shaving the left side of his face. Adjusted and used in this manner it will be apparent that an effective angling cutting stroke may be secured in each case, and that in each case also, the inclination of the corresponding comb teeth C³ to the cutting edge in use tends to draw the beard being cut into the sharp notches between the front sides of the comb teeth and the cutting edge of the razor blade. Some users prefer, however, to have the handle extending in a direction generally parallel to the cutting edges and to operate with a draw stroke in the general direction of the arrow shown in Fig. 10 for which the active comb teeth should extend as shown in Fig. 10,

while another user with the same handle adjustment will prefer to operate with a cutting stroke as indicated by the arrow in Fig. 11, in which case the comb teeth should be inclined as shown in the last mentioned figure.

While in accordance with the provisions of the statutes I have illustrated and described the best form of my invention now known to me, it will be apparent to those skilled in the art that changes can be made in the form of my invention without departing from its spirit, and that some features of my invention can be used without a corresponding use of other features of the invention.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a safety razor the combination of a blade holder comprising a front plate formed with a central stud, a guard member comprising a body portion and a central post projecting from said body portion and apertured to receive said stud, a handle adjustably secured to the outer end of said post, and means mounted on said post between said handle and body portion for engaging said stud and locking said plate and guard member together.

2. In a safety razor the combination of a blade holder comprising a front plate formed with a flattened central stud having screw thread segments formed on its edges, a guard member comprising a body portion and a central post projecting from said body portion and chambered and apertured at its base to receive said stud and to expose the threaded edges thereof, a handle adjustably secured to the outer end of said post, a clamping nut swiveled on said post between said handle and body portion, and adapted to screw on to said stud.

3. In a safety razor, the combination of a blade centrally slotted adjacent its ends and a holder consisting of a front plate and a guard member between which the blade is secured, spring means secured to said guard member and comprising a spring end at each end of the holder extending transversely to the plane of the blade and formed with a central projection passing through the adjacent blade slot and having shoulders at the sides of said projection engaging the side of the blade.

4. In a safety razor the combination of a blade centrally slotted adjacent its ends and a holder consisting of a front plate and a guard member between which the blade is secured, a pair of bent springs secured to the guard member each having a portion one adjacent one end and the other adjacent the opposite end of the holder which extends transversely to the blade and comprises a central projection passing through the adjacent blade slot and shoulders at the sides of said projection engaging the side of the blade.

HARRY B. HARTMAN.

A. N. BENN.

SAFETY RAZOR.

APPLICATION FILED JULY 3, 1918.

**1,308,730.**

Patented July 1, 1919.

Fig. 1.

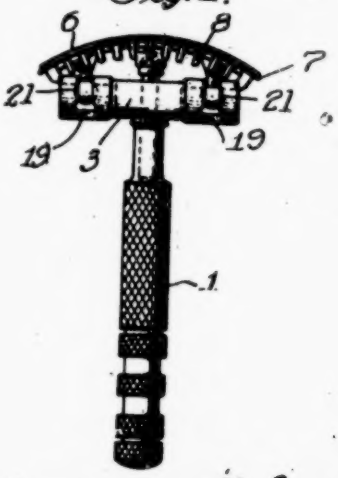



Fig. 2.

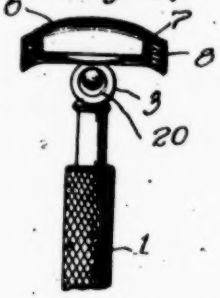



Fig. 3.

Fig. 6.

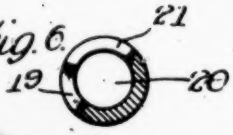



Fig. 5.

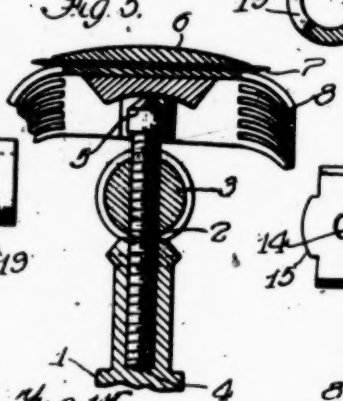



Fig. 4.

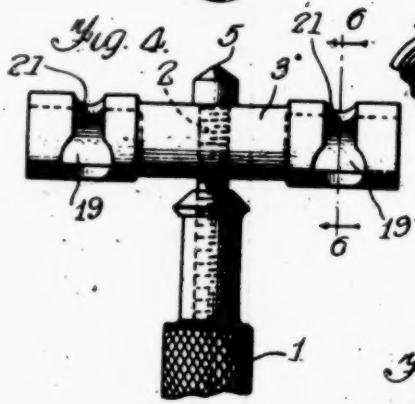



Fig. 7.

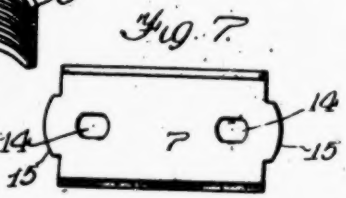



Fig. 11.

Fig. 10.

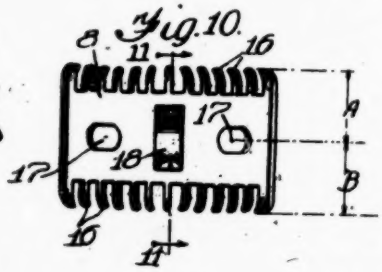



Fig. 8.

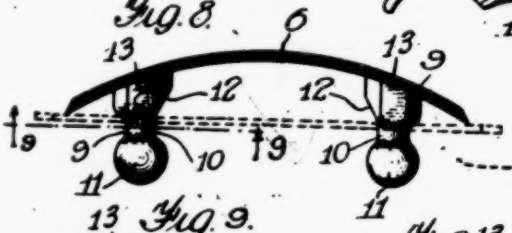



Fig. 9.

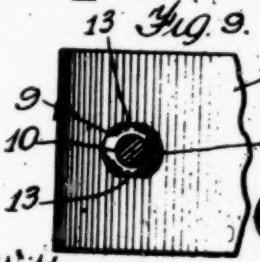



Fig. 13.

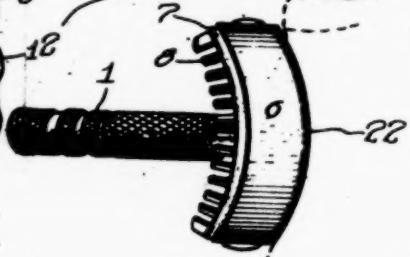



Fig. 12.

Witnesses:
A. J. Sauser.
R. F. Martin.

Inventor:
A. N. BENN
By William Williams
atty

# UNITED STATES PATENT OFFICE.

ALONZO NEWTON BENN, OF CHICAGO, ILLINOIS.

## SAFETY-RAZOR.

1,308,730. Specification of Letters Patent. Patented July 1, 1919.

Application filed July 3, 1916. Serial No. 107,220.

*To all whom it may concern:*

Be it known that I, ALONZO NEWTON BENN, a citizen of the United States, residing at Chicago, in the county of Cook and the State of Illinois, have invented a new and useful Improvement in Safety-Razors, of which the following is a specification.

The object of my invention is to make the most convenient and efficient safety razor possible, having the detailed merits as herein set forth and the invention is described in the claims.

Reference will be had to the accompanying drawings in which:

Figure 1 is a front elevation of the razor assembled for use.

Fig. 2 is a view at right angles to that of Fig. 1.

Fig. 3 is a similar view to that of Fig. 2 when the razor blades is adjusted at an incline.

Fig. 4 is a view on an enlarged scale of a part of the handle looking in the same direction as that of Fig. 1.

Fig. 5 is a central sectional view on an enlarged scale looking in the direction of Fig. 2.

Fig. 6 is a sectional view on line 6—6 of Fig. 4.

Fig. 7 is a plan of the razor blade.

Fig. 8 is an elevation of the blade holder.

Fig. 9 is a plan sectional detail of the left side of Fig. 8 on line 9—9 of Fig. 8.

Fig. 10 is a plan of the guard piece.

Fig. 11 is a central section on line 11—11 of Fig. 10.

Fig. 12 is a sectional view showing the parts in a position when they are being put together or taken apart.

Fig. 13 shows the razor in position of shaving a concave region on the face.

In the drawing 1 indicates a milled handle in a form that is common with safety razors. 2 indicates a threaded stud which is screwed through a threaded hole in a cross-head 3 in a manner to turn freely in the cross-head and then is screwed tightly into a threaded hole in the end of the handle 1, the end 4 of the screw bottoming tightly in the end of the hole in the handle in a manner to hold the screw in place without movement in the handle in the ordinary use of the razor. The screw is provided with a conical pointed head 5 which furnishes an abutment end used in locking the parts together.

The ends of the cross-head 3 are provided with holes 20 extending inward endwise about half way to the center of the cross-head, making as it were tubular ends for the cross-head. Into the sides of the tubular ends are cut slots 21 which are enlarged on the handle side as is indicated by the openings 19.

6 indicates the blade holder and 7 the blade and 8 the guard piece. The blade holder 6 is provided with posts 9 having necks 10 and spherical heads 11. The posts 9 are chamfered off at 12 on the inside faces and at 13 on the sides to assist in assembling the razor blade.

The blade 7 is provided with holes 14 having rounded ends and straight sides as shown. The straight sides register with the flat spots 13 of the blade holder. The blade is provided with projections 15 to facilitate handling of the blade in assembling the same.

The guard 8 is curved in outline to fit the blade holder 6 and is provided with the ordinary guard fingers 16 common with safety razors and is perforated with the holes 17 to fit the posts 9 of the blade holder. A curved faced projection 18 is located on the inside and at the middle of the guard piece 8.

In assembling the razor, the blade, which is a straight flat piece, is placed in position on the blade holder 6 with its holes 14 registering over the posts 9 as shown by the dotted lines in Fig. 8, then the guard piece 8 is placed in contact with the blade and with its holes 17 registering with the posts 9. The parts are then pressed together flexing the blade to the curved form of the blade holder the inclines 12 assisting, as has been said, in guiding and holding the blade as it is pressed toward the holder and passes over the chamfered parts of the studs between which it fits when fully home. The projection 15 facilitates handling the blade, it being possible, obviously, to compress the blade endwise as soon as flexing begins by mere pressure of the fingers. Then the handle 1 with its cross-head 3 is placed in position with its openings 19 in the cross-head passing over the heads 11 of the posts 9 moving in the direction indicated by the position of the parts as is indicated by Fig. 12. The handle is then rocked, bringing the slots 21 of the cross-head over the necks 10 of the posts 9 thus engaging the heads 11 within

the tubular ends of the cross-head. Thereupon the handle 1 is rotated, carrying with it the screw 2 in a direction to cause the threads in the cross-head to drive the head 5 of the screw into the curved faced projection 18 of the guard piece, thus locking the parts together.

The angular relation of the blade holder may be varied to suit the convenience of the user over any angle covered by the curved face of the projection 18 of the guard piece, the axis of this adjustment being the center of the spherically shaped heads 11 of the posts 9.

The holes 17 in the guard piece 8 are a little nearer the guards on one side than they are on the other side, that is the distance A is a little shorter than the distance B, Fig. 10, for the purpose of causing the guard fingers 16 to project over the razor blade a little farther on one side than on the other. This permits a little more clearance and a deeper cut of the blade on one side than on the other, permitting the user to choose what suits him best for the class of shaving he desires.

The curved out-line of the razor is especially serviceable in shaving concave surfaces on the face as is indicated by Fig. 18, wherein the dotted lines indicate the out-line of the chin and 22 indicates the razor in position in shaving the concave space below the lower lip.

Heretofore with safety razors having double edged blades held in place by means of perforations through the blade, it has been necessary to disconnect a greater number of pieces with more trouble and inconvenience in changing blades than with my device.

In the use of my razor I have simply to twist the handle slightly, loosening the screw head 5 just enough to free it from pressure against the projection 18 of the guard piece 8 and then rock the handle and cross-head 3 until the openings 19 register with the heads 11 of the posts 9 whereupon the cross-head 3 becomes disconnected and the parts may then be separated. This operation is much easier and simpler than are the connections ordinarily found in razors of this class.

Besides the facility which my construction permits of in replacing the blades, at the same time without extra means or mechanism, it provides for the adjustment of the handle at different inclined positions in relation to the blade, which is a very desirable convenience for users of razors of this class.

The sanitary features of razors of this class are serious and although a razor may be so shaped and constructed as to shave conveniently, if it has notches, corners and inaccessable places which are not easily cleaned, it is an undesirable instrument. My construction gives ready access to all parts, which permits them to be easily and thoroughly cleaned, which is a great desideratum.

What I claim is:

1. In a razor, a blade holder curved lengthwise of the blade, and provided with a curved seat adapted to receive a flat blade in a bended position, projections extending from the blade side of the blade holder and within the area covered by the blade, a flat double edged perforated blade adapted to register with its perforations over the projections of the blade holder, a perforated guard piece adapted to register over the projections of the holder and curved lengthwise on the side in contact with the blade and provided with a concave seat as a part of the fastening means on its central portion, a cross-head hinged to the ends of the projections of the holder, a handle mounted in the cross-head and adapted to be adjusted to and from the concave seat whereby the parts are clamped together.

2. The combination with a blade holder having a cylindrically concave surface, to receive a normally plane blade, and studs projecting from said surface and each provided with an incline on the side which faces the other stud, of a flexible blade perforated to pass over said studs, adapted to slide along said inclines when curved, and having cutting edges in planes transverse to the axis of curvature, a guard member having a convex surface adapted to fit said concave surface and provided with elongated apertures to receive said studs, a handle adapted to be detachably connected to the projecting ends of the studs to limit the distance of the holder from the handle, and means carried by the handle for forcing the guard member toward the holder and clamping the blade.

3. The combination with a handle and a holder detachably secured thereto and having a cylindrically curved blade-receiving surface from which project two studs more widely separated near their free ends than at their bases, of a flexible blade perforated to pass over the studs and when curved to fit closely between their bases, a guard member curved like the holder and perforated to pass over the studs, and screw devices carried by the handle and adapted to force the guard member outward to clamp the blade against the holder.

4. A razor of the class described, a blade holder provided with projections extending from the blade side, a flat double edged blade perforated to fit over the projections of the holder, a guard piece adapted to fit over the projections and register against the blade, a cross-head hinged to the ends of the projections by means of slots in the cross-head which engage the heads on the projections, with a handle carried by the cross-head and

adapted to be adjusted to clamp the parts together.

5. In a razor of the class described, a blade holder convex on the outside lengthwise of the cutting edge and correspondingly curved on its inside, projections extending from the inside of the holder and adapted to be hinged to the handle, a perforated flexible blade adapted to register on the projections of the holder and be flexed into cutting position, a guard piece perforated and shaped to fit over the projections and in contact with the blade when in the holder and provided with a central projection or body portion having a concave surface in a direction transversely of the cutting edges of the blade; with a handle hinged concentrically to the concave surface by detachable means to the outer ends of the projections on the holder and provided with an adjusting screw adapted to be screwed into contact with the concave surface in the body of the guard piece and thereby provide means for locking the several pieces together at varying positions of the handle with the other parts.

6. In a razor of the class described, a blade holder provided with projections extending toward the handle side, a flat blade adapted to register on the inside of the blade holder, a guard piece adapted to register on the blade and provided with a concave central portion; with a handle composed of a cross-head and a handle stem and the said cross-head adapted to be connected by a hinged connection, the axis of which is concentric with the said concave portion of the guard piece, to the projections on the blade holder and provided with means for pressing on the said concave portion of the guard piece to hold the same in position.

7. In a razor of the class described, a blade holder curved lengthwise of the blade and provided with projections extending outward on the blade side and located within the blade area, a perforated flat blade adapted to register over the projections of the blade holder, a guard piece also adapted to register on the projections of the holder and clamp the blade in place; with a cross-head hinged to the projections by means of slots adapted to embrace the heads of the projections and a handle connected with the cross-head and provided with means for adjusting it through the cross-head and in contact with the guard piece and thereby clamping the parts together.

8. A blade holder and a flat blade, the said holder curved lengthwise of the blade and provided with posts on the blade side and the said blade perforated in a manner to register over the posts and be flexed into contact with the holder and said perforations having straight sides parallel with the cutting edges in a manner to hold the registration during the flexing; with a handle hinged to the ends of the posts and adjustable to different positions and means for securing the parts together.

9. In a razor, a blade holder provided with posts extending upward from the blade side, said posts having spherically shaped heads connected by necks to the bodies of the posts, a perforated blade adapted to register over said posts, a guard piece also adapted to register over said posts, with a handle connected to said spherical heads of said posts by hinged connections and provided with means for clamping the guard piece, blade and holder together.

10. In a razor, a blade holder provided with projections extending upward from the blade side of the holder, said projections having spherical heads connected by necks to the main bodies of the posts, a perforated blade adapted to register in the holder with its perforations over the posts, a guard piece adapted to register in contact with the blade, a handle having curved slots adapted to engage the spherical heads of the posts in a manner to form a hinge on the center line of said heads; with means for clamping the parts together.

11. A razor, provided with a blade holder piece which is the face contact piece and said holder provided with projections adapted to hold the blade in registration and provided with means on the heads of the projections adapted to form a part of a hinged connection with the handle, a blade adapted to register on the inside of the holder, a guard piece adapted to register in contact with the blade and provided with a concave surface in its body portion, a handle having a cross-head adapted to form a hinged connection at the ends of the cross-head with the heads of the said projections and provided with adjusting means adapted to register in contact with the concave surface of the guard piece and clamp the several parts together.

12. In a device of the class described, a blade holder, a perforated blade and a perforated guard piece, a handle provided with a cross-head mounted on screw threads on the handle in a manner that the end of the handle will travel forward and back beyond the cross-head by revolving the handle, said cross-head hinged to the said blade holder through the medium of posts connected to the said blade holder and passing through the blade and guard piece and the parts clamped into place by the travel of the end of the handle through the said cross-head.

13. In a device of the class described, a blade holder provided with projections extending on the blade side and located within the blade area, a handle connected to the heads of the said projections on the holder by means of apertured slotted hinge holes adapted to permit of the engagement and

disengagement of the parts when in position in relation to each other different from those used in shaving and to be adjusted about the axis of the hinge for different positions of the handle in relation to the blade.

14. In a device of the class described, a blade holder, a blade, a guard piece and a handle, said blade holder provided with projections extending on the blade side and said blade perforated and adapted to fit with its perforations over the said projections and said guard piece adapted to fit on the said projections on the inside of the blade and the said handle composed of a main stem for the hand of the operator and a cross-head threaded on the stem and the said cross-head having apertured circumferential slots extending across one side of the ends thereof adapted to engage the outer ends of the projections on the blade holder, and means for clamping the parts together.

15. A blade holder provided with projections extending upward from the blade side of the holder, a perforated blade adapted to register with its perforations over the projections of the holder, a guard piece adapted to register on the blade within the holder and provided with a concave surfaced projection on its central portion, a handle hinged to the heads of the said projections on said holder concentric with the said concave surface and provided with means for applying pressure between the concave surface of the guard piece and the handle for holding the parts together.

16. In a device of the class described, a blade holder, a blade, a guard piece, a cross-head and a handle, said cross-head adapted to be hinged to the blade holder through the medium of posts on the blade holder and connected thereto by circular apertures in the ends of the cross-head with means for clamping the parts together.

17. In a razor, a blade holder provided with projections located within the area of the blade the ends of which are adapted to form part of a hinged connection with the handle, a perforated blade and a perforated guard piece adapted to register over the projections of the holder, a handle adapted to be hinged to the ends of the said projections on the blade holder; with means for clamping the parts together at varying positions of angularity of the cutting blade with the stem of the handle.

Signed at Chicago, in the State of Illinois and the county of Cook this 1st day of July, 1916.

ALONZO NEWTON BENN.

Witnesses:

JOHN J. ST. GEORGE,

JAMES P. SINON.

C. L. MERZ.

SAFETY RAZOR.

APPLICATION FILED DEC. 22, 1920.

1,389,962.

Patented Sept. 6, 1921.

2 SHEETS—SHEET 1.

Fig.-1.

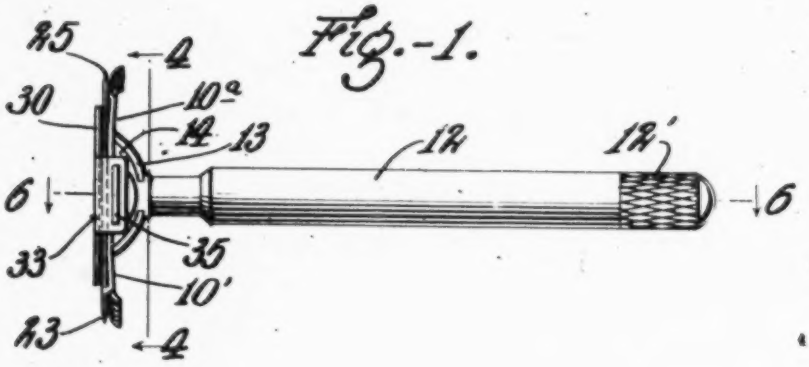



Fig.-2.

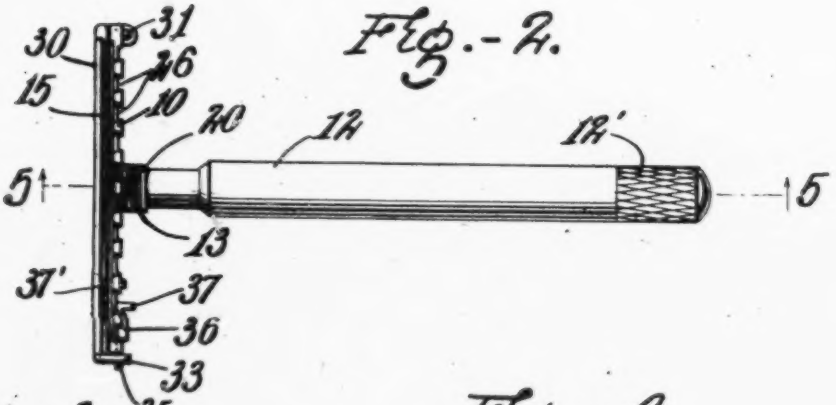



Fig.-3.

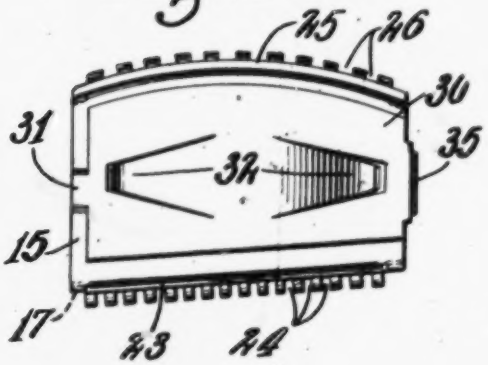
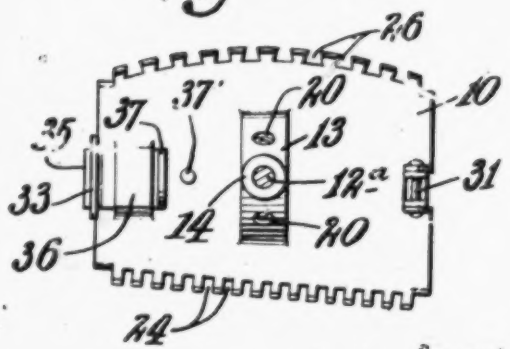



Fig.-4.




Inventor

Carl L. Merz

By Goltaud & Plachetz

Attorney

C. L. MERZ.

SAFETY RAZOR.

APPLICATION FILED DEC. 22, 1920.

1,389,962.

Patented Sept. 6, 1921.

2 SHEETS—SHEET 2.

Fig.-5.

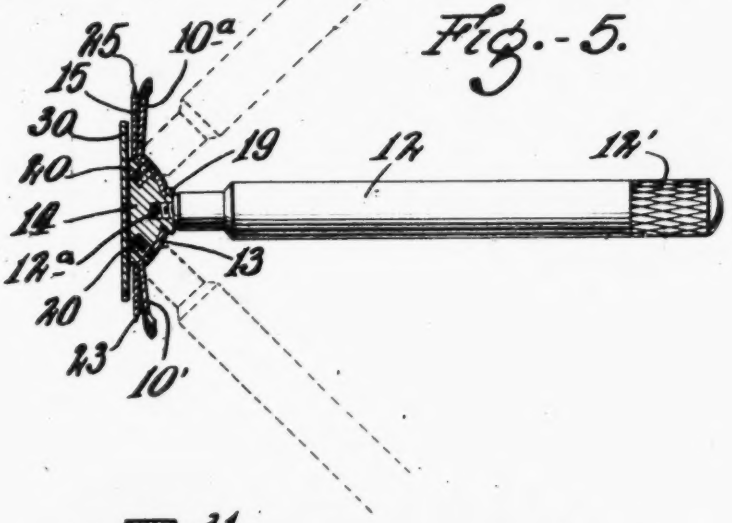



Fig.-6.

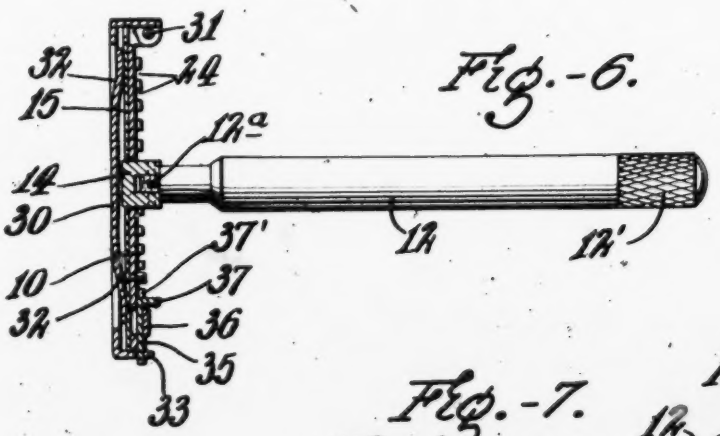



Fig.-7.

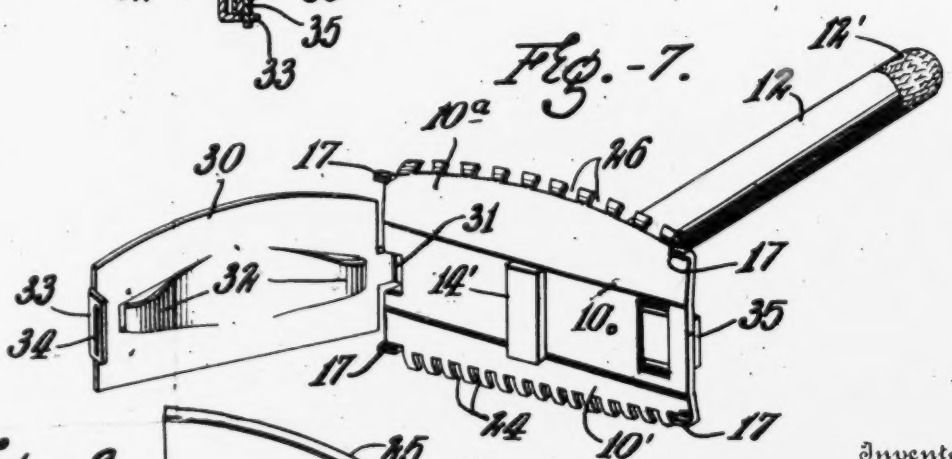
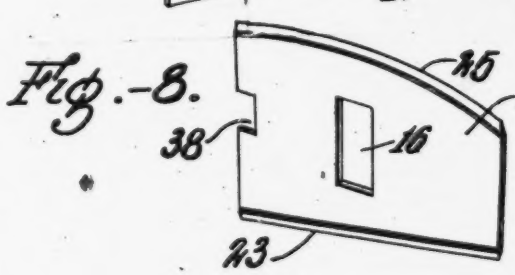



Fig.-8.




Inventor

Carl L. Merz

By Zoltan J. Polachek

Attorney

# UNITED STATES PATENT OFFICE.

CARL L. MERZ, OF NEW YORK, N. Y.

## SAFETY-RAZOR.

1,389,962. Specification of Letters Patent. Patented Sept. 6, 1921.

Application filed December 22, 1920. Serial No. 432,331.

*To all whom it may concern:*

Be it known that I, CARL L. MERZ, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Safety-Razors, of which the following is a specification.

This invention relates to safety razors and its has for a general object to produce a safety razor characterized by improved efficiency both as to cutting qualities, ease of manipulation, and facility in mounting and removing the razor blade.

In safety razors as heretofore used the parts are so constructed that the cutting edge of the blade advances with a direct motion at right angles to itself during operation when the handle is held in the natural position for easy manipulation, extending in a plane vertical to the surface being acted upon. The single cutting action thus obtained is not of the highest efficiency and a blade thus operating does not have the maximum cutting effect possible thereto.

It is one object of this invention to provide a safety razor in which the cutting edge has the maximum cutting efficiency and acts with a double or compound cutting action, having both a direct advancing movement and also a lateral diagonal movement, while the handle is held and manipulated in a normal or natural manner, with a straight stroke in one direction. This compound cutting action is recognized as increasing the keenness of the cutting edge, but difficulty in manipulation is effected when an endeavor is made to use the same when employing an ordinary safety razor.

A further object is to combine the feature of increased keenness of cutting action with a construction permitting more ready application of the cutting edge to the concaved contours of the face.

A further object is to provide a novel means for securing the cutting blade in place, which means is simple in construction and facilitates application and removal of the blade, and also is arranged without detachable parts liable to be lost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

Figure 1 of the drawings is a side view of a safety razor constructed according to the invention, showing the blade and its mounting in end view.

Fig. 2 is a side view at right angles to Fig. 1.

Fig. 3 is a face view of the safety razor.

Fig. 4 is a transverse section on the line 4—4 of Fig. 1.

Fig. 5 is a longitudinal section on the line 5—5 of Fig. 2, the handle being shown in elevation.

Fig. 6 is a longitudinal section on the line 6—6 of Fig. 1, with the handle in elevation.

Fig. 7 is a detail perspective view of the razor, with the blade removed and the holder therefor thrown back.

Fig. 8 is a detail perspective view of the cutting blade forming part of the improved safety razor.

Referring now to the drawings my improved safety razor comprises a blade support in the form of a plate 10, which, transversely considered, presents backwardly bent marginal portions 10′ and 10ª, giving the front face of the plate a generally convexed contour, although the intermediate portion of the plate is preferably left flat. For convenience in description, in referring to the blade support the view shown in Fig. 1 of the drawings will be referred to as the transverse edge view and that in Fig. 2 as the longitudinal edge view.

This plate 10 is adapted to be mounted on a handle 12 which is preferably in the form of a straight bar of circular cross section and which may have the rear portion thereof knurled as at 12′, or otherwise formed to facilitate gripping in the hand of the user. The handle 12 is adapted for different angular positioning with respect to the plate 10, considering the plate in transverse edge view, these adjustments all occurring in a plane intersecting the plate at right angles as seen in longitudinal edge view; in which plane the handle extends for a purpose to be later set forth in greater detail.

To secure the handle 12 to the plate 10 the latter is formed between its ends with a backwardly bowed portion 13, leaving an open sided socket in the front face of the plate in which is located a filler block 14 whose rear face is curved to fit the part 13 and whose front face is flat and projects slightly beyond the face of the plate, providing the latter with a projection 14′ adapted to en-

gage the cutting blade. The latter is indicated at 15 and is provided with a rectangular opening 16 which fits snugly over the projection 14', while the corners of the plate 10 have forwardly bent lugs 17 against which the corners of the blade 15 rest. The block 14 may be secured in place by forming a boss 19 on the curved rear face thereof which is extended through a suitable opening in the member 13 and riveted over the edges of the latter. Formed in the segmental boss thus formed on the back of plate 10 are a series of angularly differentiated threaded sockets 20 which are adapted to receive the screw threaded end 12ª of the handle 12 to secure the latter to the blade holder.

As previously referred to briefly, an important feature of the invention is the arrangement of the cutting edges, both to obtain an improved cutting action and for accommodation to the concaved contours of the face. In embodying these features I make provision for giving a compound cutting action to the cutting edge, or edges of blade 15 by a straight pull in the plane of the handle. Whereby the said cutting edge not only advances into the part being shaved but has a lateral movement thereacross. To this end the blade 15 may be formed on one side with a straight cutting edge 23 which as seen in face view is inclined or diagonal with respect to the longitudinal median line of the plate 10. This longitudinal median line may be definied as one extending at right angles to the plane of adjustment of handle 12 and located approximately midway between the cutting edges of the blade. The guard for this cutting edge is formed by the back-turned marginal portion 10' of the plate 10 which projects slightly beyond the edge of the blade and is formed with serrations 24. With this arrangement, as will be understood, when the razor is applied to the face with the handle 12 extending, and moving, in a plane at right angles to the surface to which the razor is applied one end of the edge 23 moves in advance of the other and the compound movement above referred to takes place, in contra-distinction to the straight advancing movement of the ordinary type of safety blade, resulting in an improved cutting action and decreasing the "pull" of the razor on the beard.

The opposite edge 25, of the blade 15 to that just described is convexed as seen in face view, the bent back portion 10ª of the plate 10 forming a guard for this edge. This bent back portion is formed with notches or serrations 26 which preferably enlarge toward their inner ends as shown. With this convexed cutting edge, the compound action above referred to is obtained while at the same time application of the razor to the concaved contours of the face is facilitated.

Referring now to the means for securing the blade 15 upon the plate 10, and which with the latter, jointly constitute the blade holder, this means here comprises a cover 30 hinged at one end as at 31 to the plate 10 and having a pair of tongues 32 struck inwardly therefrom and adapted to bear with a resilient pressure on the cutting blade 15, on opposite sides of the projection 14', these tongues pressing the blade against the lugs 17, the latter projecting slightly beyond the center portion of the plate so that the blade is slightly sprung when the tongues press thereagainst. The free end of this cover is formed with an inturned member 33 which is formed with a slot 34 and projects across the end of the plate 10. Slidably carried on the back of the latter is a latch-bar 35 which is adapted to be projected into the slot 34. This latch-bar 35 may be conveniently guided by a strap-element 36 struck backwardly from the plate 10 and may have a thumb-piece 37 on its inner end. To accommodate the hinge 31 the cutting blade 15 may have a notch 38 formed in one end thereof.

By providing the lugs 17 on the holder plate 10 the edge of the blade is kept spaced from the guard elements 24, 26 while at the same time the slight springing of the blade as the tongues 32 press thereon acts to keep it firmly in position.

As will be apparent from the above description I have provided a novel safety razor in which are embodied, in a simple construction, features whereby manipulation is facilitated and the cutting action improved.

As will be noted, in operation, the handle 12 may be given a stroke in a plane at right angles to the surface acted upon while the cutting edge of the blade will be diagonal to its line of movement and a compound cutting action is effected, this diagonal disposition of the cutting edge causing both to advance into and to have a lateral movement across the part being shaved.

Having thus described my invention what I claim as new and desire to protect by Letters Patent of the United States is as follows:

1. In a safety razor, a blade holder comprising a plate presenting opposed diagonal and convexed guard edges, a block set into said plate centrally thereof and having its front face projecting slightly beyond the plate, said block and plate presenting a convexed rear portion having a series of angularly differentiated sockets adapted to receive a handle.

2. In a safety razor, a blade holder comprising a plate presenting opposed diagonal and convexed guard edges, said plate presenting a flat portion intermediate the said edges, and backwardly bent marginal portions, said

plate presenting a backwardly bowed central portion forming a socket, a filler block in said socket having its front face projecting slightly beyond the front face of the plate, and angularly differentiated sockets opening through said bowed portion of the plate into said block to receive a handle.

3. In a safety razor, a holder plate, a block element secured in the center of said plate with its front-face projecting slightly beyond the plate and its rear face convexed, said rear face being formed with a series of angularly differentiated sockets adapted to receive a handle, a blade having an opening complementary to said forwardly projecting face of the block, and a cover member engaging over said blade.

4. In a safety razor, a holder plate, a block element secured in the center of said plate with its front face projecting slightly beyond the plate and its rear face convexed, said rear face being formed with a series of angularly differentiated sockets adapted to receive a handle, a blade having an opening complementary to said forwardly projecting face of the block, and a cover member engaging over said blade, said cover member having resilent tongues, plate having forwardly projecting lugs at the corners thereof against which the blade is pressed by the said tongues.

In testimony whereof I have affixed my signature.

CARL L. MERZ.

**DEFENDANT'S EXHIBIT NO. 3.**

390

# DEPARTMENT OF COMMERCE
## UNITED STATES PATENT OFFICE

*To all persons to whom these presents shall come, Greeting:*

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office **of the File Wrapper and Contents, in the matter of the**

**Letters Patent of**

**Henry J. Gaisman,**

**Number 1,633,739, Granted June 28, 1927,**

**for**

**Improvement in Safety Razors.**

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this **first** day of **April**, in the year of our Lord one thousand nine hundred and thirty-two and of the Independence of the United States of America the one hundred and fifty-sixth.

ATTEST: *D. Clidden*
*Chief of Division.*

*Thomas E. Robertson*
*Commissioner of Patents.*

11—8836

194

RENEWED (Series of 1912), 602378

1912

O. 1633739

(EXTENSION) 25-46

DIV. ~~20~~ 25

PATENT No. 1633739

JUN 28 1927

Name Henry J. Gaisman

of New York,

County of

State of New York

Invention Safety Razors

| PARTS OF APPLICATION FILED | ORIGINAL | RENEWED |
|---|---|---|
| Petition | Nov. 21, 1922 | , 19 |
| Affidavit | " " , 1922 | , 19 |
| Specification | " " , 1922 | , 19 |
| Drawing | " " , 1922 | , 19 |
| Photo Copy | , 19 | , 19 |
| First Fee $20 | Nov. 21, 1922 | , 19 |
| Appl. filed complete | Nov 21, 1922 | , 19 |
| | | , 19 |
| Examined and Passed for Issue | Dec 8, 1926 | , 19 |
| J. Charlesworth | Exr. Div. 25 | Exr. Div. |
| Notice of Allowance | Dec 8, 1926 | , 19 |
| Final Fee $20 | May 21, 1927 | , 19 |
| Patented | JUN 28 1927 | , 19 |

Attorney J. F. Bourne 41 Park Row, New York, N.Y.

Associate Attorney

(No. of Claims Allowed 8) Print Claim 1 in O.G. (Vol. 30-12)

Title as Allowed Safety Razor.

Division of App., No., filed , 19

Ser. No. 602,378 Filed Nov. 27, 1922
Application

Attorney Ref. No. 25

2688

# Petition.

## To the Commissioner of Patents:

Your Petitioner HENRY J. GAISMAN,

a citizen of the United States and resident of New York City, Borough of Manhattan, in the County of New York and State of New York, whose Post Office address is 606 First Ave., New York City, N. Y. prays that Letters Patent may be granted to him for the improvement in

SAFETY RAZORS

set forth in the annexed specification; and he hereby appoints T. F. BOURNE, of No. 41 Park Row, New York City, Borough of Manhattan, New York, his attorney, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to sign the drawings, to receive the patent and to transact all business in the Patent Office connected therewith.

Signed at New York in the county of New York and State of New York this 17th day of Nov. 1922

Inventor's Signature, Full Name: Henry J. Gaisman

25

# Specification.

To all whom it may concern:

Be it known that I, HENRY J. GAISMAN,

a citizen of the United States and resident of New York City, Borough of Manhattan, in the County of New York and State of New York

have invented certain new and useful improvements in

SAFETY RAZORS

of which the following is a specification:

60 2378

My invention relates to safety razors and is particularly applicable to the class of safety razors comprising a guard, a backing and a thin flexible blade clamped between the guard and the backing to retain the cutting edge of the blade in shaving relation to the guard teeth. In the class of razors described it has been customary, so far as I am aware, to provide the backing member with pins that project through holes in the blade and into holes in the guard member, whereby the blade and the backing are retained from rotation on the guard by the cooperation of said pins with the guard and the clamping of the blade between the guard member and the backing member, so that the blade performs no function in retaining any of said parts with relation one to another.

The object of my invention is to provide a safety razor wherein a blade will cooperate with a guard member to retain the blade in shaving relation thereto and the blade will also cooperate with a backing member to retain the latter in proper relation to the blade for shaving purposes, so that the position of the backing member with regard to the guard member is maintained by the blade and not by the cooperation of said members together in the well known manner I have described above.

In carrying out my invention I provide a guard member and a blade having cooperative means to retain the blade in shaving position on the guard, a backing member for the blade, means cooperative between the blade and the backing member whereby the blade re-



6 . 3

tains the backing member in operative relation to the blade and the guard, and means to cause the guard member and backing member to clamp the blade therebetween.

My invention also comprises novel details of improvement that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part hereof, wherein,

Fig. 1 is a plan view of a safety razor embodying my invention;

Fig. 2 is a similar view, the backing member being removed;

Fig. 3 is a plan view of the guard member;

Fig. 4 is a cross section on line 4,4 in fig. 1;

Fig. 5 is a longitudinal section on line 5,5 in fig. 1;

Fig. 6 is a detail section on line 6,6 in fig. 1;

Fig. 7 is a plan view of the blade;

Fig. 8 is an edge view of the blade;

Fig. 9 is a detail end view of the backing member, and

Fig. 10 is a detail end view illustrating the guard member.

Similar numerals of reference indicate corresponding parts in the several views.

The guard member is indicated at 1, the blade is indicated at 2, and at 3 is a backing member, so organized that the blade may be clamped between said

members. The guard member is shown of the variety having guard teeth 1a on opposite sides along which the cutting edges of the blade may extend in an ordinary way for shaving. Any suitable means may be provided for causing the blade to be clamped between the guard member and the backing member. In the example illustrated the backing member 3 is provided with a threaded projection 4 adapted to pass through a centrally disposed hole in the guard member to receive the internal portion 5a of a suitable handle 5 to clamp the parts together for shaving. The blade is provided with a substantially centrally disposed opening 2a through which the projection 4 of the backing member may pass when the blade is between the members land 3. Heretofore, so far as I am aware, the opening in the blade for the projection from the backing for clamping the parts together has been circular so that reliance was had upon spaced pins projecting from the backing to pass through spaced holes in the blade and into holes in the guard member to keep the blade and backing in position on the guard member. In accordance with my invention I provide cooperative means between the blade and the guard member to keep the blade from rotating on said member. For such purpose I provide a projection 1b on the blade side of the guard member adapted to enter an opening 2a in the blade. By preference I make the opening 2a in the blade of non-circular shape, preferably having straight sides, the opening 2a in the drawing being shown in so-called diamond shape, and the projection is of non-circular shape, as shown in so-called diamond shape,

(fig. 3), adapted snugly to receive the metal at the sides of opening 2a so that the blade will, by said projection, be retained upon guard member 1 with its cutting edges in shaving relation to the guard teeth when the parts are assembled. Means are provided between the blade and the backing member to cause the blade to retain the backing in operative relation to the blade and the guard, for which purpose I have shown the blade provided with recesses or openings 2b, preferably at its ends, adapted to receive projections or pins 6 extending from the backing member toward the blade, but not to cooperate with the guard member to retain the backing. The backing member is provided with means to receive the projection 1b of the guard member, for which purpose I have shown the backing member provided with an outwardly disposed depressed or recessed portion 8a which will receive the projection 1b while the side portions of the backing member bear upon the blade for clamping it against the guard member.

When the parts are to be assembled for use the blade may be placed upon the guard member so that the projection 1b of the latter will enter the opening 2a of the blade and thereby the blade is positioned in proper relation to the guard, and the backing member 3 will be applied upon the blade so that its projection 4 will pass through the blade and the guard member and the projections 6 will enter the openings or recesses 2b of the blade, whereby the backing, by means of the blade, is properly positioned upon the blade with respect to its

cutting edges and with respect to the guard teeth, whereupon the handle 5 will be screwed upon the projection 4, the handle engaging the guard member, to clamp the parts firmly together for shaving, (fig. 5). The projections or pins 6 do not cooperate with the guard member to retain the backing member 2 with respect to the guard member, the guard member being shown shorter, where the projections 6 extend through the blade, than the distance between said projections in the direction of the length of the guard member, so that the latter does not interfere with the projections 6. The guard member 1 and backing member 2 are shown curved in a transverse direction whereby a thin blade 2 may be clamped therebetween in a curved shape to stiffen the blade in a well known manner, although the guard member and backing member may have other shape if desired.

In accordance with my invention the blade is retained upon the guard member in the proper position by means of the cooperation of the projection 1b and the sides of opening 2a of the blade irrespective of the backing, so that when the blade is placed upon theguard member said parts will be in proper position to receive the projection 4 of the backing without the inconvenience sometimes experienced of having to manipulate the blade to register its holes with spaced holes of the guard, as heretofore known, and when the backing is applied upon the blade it will immediately be positioned and retained by reason of the projections 5 entering the openings or recesses 2b in the blade, so that the parts are conveniently retained to receive the handle for clamping the parts together, the blade performing a new function in retaining the backing member with relation to the blade and to the teeth of the guard member.

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Having now described my invention what I claim is:

1. A blade having means to cooperate with clamping members ~~on opposite~~ respectively located on different sides of the blade to retain ~~said members and blade in shaving relation.~~

2. A blade having means to position it on and retain the blade from rotation on said spindle a clamping member ~~on one side of the blade,~~ and having means to cooperate with another clamping member ~~on the opposite side of the blade~~ to retain the latter member in relation to the blade.

3. A blade provided with means to position and retain the blade from rotation on said member, itself on a clamping member ~~on one side of the blade,~~ and having means independent of the first named means for positioning another clamping member on ~~the opposite side of~~ the blade.

4. A blade having a non-circular opening substantially centrally disposed to retain the blade in shaving relation to a guard member, said blade having means spaced from said opening to cooperate with a clamping member to retain the latter in shaving relation to the blade independent of the guard member.

5. A blade having an angularly shaped opening disposed substantially centrally in the blade to cooperate with a guard member to retain the blade in shaving position thereon, and said blade being provided with means spaced from said opening to cooperate with a backing member to retain the latter in shaving relation to the blade and to the guard member.

6. A safety razor comprising blade clamping members, a blade, means cooperative between one of said members and said blade to retain the latter in



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shaving relation to said member, said blade and the other member having cooperative means whereby the blade will retain said member in an operative position respecting the blade, and means to detachably clamp the blade between said members.

4. A safety razor comprising blade clamping members, a blade adapted to fit between said members, and means to clamp said members upon said blade, one of said members having means cooperative with the blade to retain the blade in operative relation to said member and the other member having means cooperative with the blade independent of the first named means whereby the blade will retain said member in operative relation to the blade independent of the first named means.

5. A safety razor comprising a guard member having a projection on one side, a blade to fit upon said side of said member, said blade having an opening to receive said projection, said projection and the opening of the blade being cooperative to retain the blade from rotation on said member, a backing member for the blade, and means to clamp said blade between said members, said blade and backing member having cooperative means independent of the guard member whereby the blade will retain the backing member in shaving relation to the blade.

6. A safety razor comprising a guard member provided with an opening and having projecting means on one side adjacent to said opening, a blade having an opening to receive said projecting means, said blade opening and projecting means being cooperative to retain the blade in shaving position upon the guard member, a

backing member having a projection to extend through said openings in the blade and the guard member, and a handle cooperative with said projection to retain said members clamped upon the blade, said backing having projections and the blade having openings to receive said projections independent of the guard member whereby the blade will retain the backing member in shaving relation to the blade.

7 16. A safety razor comprising a guard member provided with a non-circular projection on one side, a blade having a non-circular opening to receive said projection and having other openings spaced from the first named opening, a backing member having projections to receive said other openings for retaining the backing member in shaving relation to the blade, and means for detachably clamping said members upon the blade.

8 11. A safety razor comprising a guard member provided with a projection on one side, a blade having an opening to receive said projection, said projection and opening having a cooperative contour to retain the blade in shaving position on the guard member, said blade having openings spaced from the first named opening, a backing member having a depressed portion to receive said projection of the guard member, said backing having projections to cooperate with the second named openings of the blade independently of the guard member whereby the blade will retain the backing in shaving relation to the blade and the guard member, and means for detachably clamping said members on the blade.

Inventor's Full Name Henry J. Gaisman

# Oath.

State of NEW YORK
County of NEW YORK } ss:

HENRY J. GAISMAN, the above-named petitioner, being duly sworn, deposes and says that he is a citizen of the United States, and resident of New York City, Borough of Manhatten, County of New York, State of New York and that he verily believes himself to be the original, first, and sole inventor of the improvement in SAFETY RAZORS described and claimed in the annexed specification; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof, or patented or described in any printed publication in any country before his invention or discovery thereof, or more than two years prior to this application, or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States on an application filed by himself or his legal representatives or assigns more than twelve months prior to this application, and that no application for patent on said improvement has been filed by himself or his representatives or assigns in any country foreign to the United States

Inventor's Full Name Henry J. Gaisman

Sworn to and subscribed before me, this 17 day of November A. D., 1927

[L. S.] (Signature of Notary or Justice): Bradford Butler

(Official Character): Notary Public

NOTE—If the oath be taken before a Notary Public, Seal must be attached; if before a Justice of the Peace, a Certificate of the Clerk of the Court is required.

Commission Expires

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9

Div. 20 Form 179 2-200 LVH Paper No. 2

"The Commissioner of Patents, Washington, D. C." and not any officer by name.

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

# DEPARTMENT OF THE INTERIOR

## UNITED STATES PATENT OFFICE

Long

WASHINGTON June 29, 1923

U.S. PATENT OFFICE JUN 29 1923 MAILED

T. F. Bourne,
41 Park Row,
New York City

*Please find below a communication from the EXAMINER in charge of the application of*

Henry J. Gaisman, for Safety Razors, filed Nov. 21, 1922, Serial No. 603,378

Thomas E. Robertson
Commissioner of Patents.

Claim 1 is rejected on

McCann, 842,000, Jan. 22, 1907, (30-12)MGA

The expressions "opposite sides", "one side" and "opposite side" as used in claims 1, 2 and 3 and in the specification, are not understood. Revision is required.

Claims 2 and 3 appear to be directed to patentable subject-matter.

Claims 4-11 inclusive are allowed.

F.S.L.

Exr.Div.20

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U.S. PATENT OFFICE

Application of
Henry J. Eisman,
Filed November 21, 1922,
Serial No. 602,378
Safety Razors.

Dis

PATENT OFFICE
JUN 24 1924
DIVISION XXV.

THE COMMISSIONER OF PATENTS,

Sir:-

The above entitled application, in view of Office letter of June 29, 1923, is hereby amended as follows:

Claim 1, line 2, cancel "on opposite" and insert "respectively located on different"

Claim 2, line 2, cancel "on one side of the blade," line 3, cancel "on the" line 4, cancel "opposite side of the blade"

Claim 3, line 2, cancel "on one side of the blade," line 4, cancel "the opposite" line 5, cancel "side of"

Reconsideration of claims 1, 2 and 3 as now presented is respectfully requested. It is believed the objection to the term "opposite sides" etc. has been met.

Claim 1. In McCann there is no backing member for the blade. The threaded end of rod 8 is screwed into the hole 16 of the blade. The notches 15 at the end of McCann's blade engage the lugs 9 at the end of the guard member for retaining the blade from shifting on the guard, but the blade does not perform any function in positioning a clamping member on itself or in retaining the clamping member in shaving relation to the blade independent of the guard member. In applicant's invention the blade performs the last named functions.

It is believed that the case as now presented is allowable.

Very respectfully,

New York, N. Y.
June 20, 1924.

Attorney

6[illegible]79

Div. 25 Room 315

FSL: GB

Paper No. 4

# DEPARTMENT OF THE INTERIOR
## UNITED STATES PATENT OFFICE

WASHINGTON Sept. 27, 1924

T. F. Bourne,

41 Park Row,

New York, N.Y.

PATENT OFFICE
SEP 27 1924
MAILED

*Please find below a communication from the EXAMINER in charge of the application of*

Henry J. Gaisman, filed Nov. 21, 1922, Ser. No. 602,378

Safety Razors

Thomas E. Robertson
*Commissioner of Patents.*

In response to amendment filed June 21, 1924:

Each of claims 1, 2 and 3 are rejected on each of the following patents:

Barry, 1,351,713, Aug. 31, 1920, (30-12) B.&H.M.C. Adj
Winkler, 949,999, Feb. 22, 1910, (30-25) M.B.C.
Sarkozy, 1,345,037, July 6, 1920, (30-25) M.B.C. Fnd
Wisewell, 1,445,737, Feb. 20, 1923, (30-25) M.B.C.

Claims 4 to 11, inclusive, are allowed.

F.S.L.

J. H. Shafroth
Examiner, Div. 25.

602378

Div. 25...Room 315

PATENT OFFICE
SEP 16 1925
DIVISION XXII

In re application of
Henry J. Gaisman,
Filed Nov. 21, 1922,
Serial No. 602,378,
SAFETY RAZORS.

THE COMMISSIONER OF PATENTS,

Sir:-

The above entitled application, in view of Office letter of September 27, 1924, is hereby amended as follows:

Claim 1, cancel line 3 and substitute "tain one of said members in shaving relation to the blade and to retain the blade from rotation on the other member."

Claims 2 and 3, line 2, after "member" insert "and retain the blade from rotation on said member,"

Reconsideration of claims 1, 2 and 3 as amended is respectfully requested. According to applicant's invention the blade has means to cooperate with a clamping member to retain the blade from rotation with respect to said member, and the blade also has means to cooperate with another clamping member to retain the latter in relation to the blade. Such a construction is not seen in either reference. In Barry the blade 22 has openings 23 which fit over the pins 20, but the blade has no means to cooperate with the plate 8 for retaining the latter in shaving relation to the guard 17.

In Flinker the jaw e of member A has clips or hooks f, f' and the opposite jaw of the member B has notches g in which the clips fit and such clips pass through the holes in the blade but the blade does not perform a function in holding either member e as the latter are retained together by the hinges or the like. When the members are closed the jaws grip the blade.

In Sarkozy the blade has slots 1a through which the hooks 3a are adapted to project. When the blade is placed

upon one of the members and the other member is laid upon the blade the members may be moved longitudinally to cause the hooks of the members to interengage, and while the hooks pass through the blade the members are retained together against the blade by the hooks. The blade does not perform a function in retaining itself upon a clamp member and also retaining a clamp member in position upon the blade.

In Wiswell one jaw has an opening and the other jaw has a lug struck up. The jaw members are moved toward each other and swung inwardly of the clamp, the resiliency of the clamp causing the jaws to bind on the blade, but the blade does not retain a clamping member on itself.

It is thought the claims as now presented are allowable.

Very respectfully,

R. F. Bourne

Attorney

September 14, 1925.

New York, N. Y.

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Div. 25 Room 314 FSL:NJ 2-260

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 6

All communications respecting this application should give the serial number, date of filing, and name of the applicant

*Please find below a communication from the EXAMINER in charge of this application*

Thomas E. Robertson
*Commissioner of Patents*

December 4, 1925.

Dec 4 1925

Applicant: Henry J. Gaisman

Ser. No. 602,378
Filed Nov. 21, 1922
For Safety Razors

T. F. Bourne,
41 Park Row,
New York, N.Y.

In response to amendment filed Sept. 15, 1925.

Claims 4 to 11 inclusive stand allowed.

Claims 1,2 and 3 are rejected as failing to patentably distinguish over any of the following patents:

| | | | | |
|---|---|---|---|---|
| Brunacci | 933,415 | Sept. 7, 1909 | 30/12 | S.C. |
| Ocumpaugh | 983,640 | Feb. 7, 1911 | 30/12 | m |
| Cecil | 1,225,409 | May 8, 1917 | " | |
| Gillette | 179,413 | Dec. 1, 1906 | 30/12 | Blade |
| (German) (1 sheet) | | | | |

A further state of the art is disclosed in the patents to

| | | | | |
|---|---|---|---|---|
| Mulder | 1,271,352 | July 2, 1918 | 30/12 | Blade |
| Twigg et al | 1,262 | Jan. 18, 1910 | 30/12 | S.n.a. |
| (British) (1 sheet) | | | | |

J. F. Richardson
Examiner.

FSL.

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Div. 25....com 314

In re application of
Henry J. Gaisman
Ser. No. 602,378
Filed Nov. 21, 1922,
SAFETY RAZORS.

THE COMMISSIONER OF PATENTS,

Sir:-

The above entitled application, in view of Office letter of December 4, 1925, is hereby amended as follows:

Cancel claims 1, 2, 3 and adjust the ordinals of the remaining claims.

Claim 7, former 10, line 5, change "openings" to "opening"

The amendment in Claim 7, line 5, is made to correct an obvious error.

It is believed the amendment places the case in condition for allowance.

Very respectfully,

T. F. Bergen
Attorney

New York, N. Y.
November 30, 1926.

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ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON, D. C.

Div. 25. 181

Serial No. 602,378

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON December Eight, 1926.

IN REMITTING THE FINAL FEE GIVE THE SERIAL NUMBER AT THE HEAD OF THIS NOTICE.

Henry J. Gaisman.

Sir: Your APPLICATION for a patent for an IMPROVEMENT in Safety Razors

filed Nov.21,1922 has been examined and ALLOWED ( 8 claims).

The final fee, TWENTY DOLLARS, must be paid not later than SIX MONTHS from the date of this present notice of allowance. If the final fee be not paid within that period, the patent on this application will be withheld, unless renewed within two years after the date of this notice with an additional fee of $20, under the provisions of Section 4897, Revised Statutes.

The office delivers patents upon the day of their date, and on which their term begins to run. The printing, photolithographing, and engrossing of the several patent parts, preparatory to final signing and sealing, will require about four weeks, and such work will not be undertaken until after payment of the necessary fee.

When you send the final fee you should also send, DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, TITLE OF INVENTION, AND SERIAL NUMBER AS ABOVE GIVEN, DATE OF ALLOWANCE (which is the date of this circular), DATE OF FILING, and, if assigned, the NAMES OF THE ASSIGNEES.

If you desire to have the patent issue to ASSIGNEES, an assignment containing a REQUEST to that effect, together with the FEE for recording the same, must be filed in this office on or before the date of payment of final fee.

After issue of the patent uncertified copies of the drawings and specifications may be purchased at the price of TEN CENTS EACH. The money should accompany the order. Postage stamps will not be received.

Final fees will NOT be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

Respectfully,

Thomas E. Robertson
Commissioner of Patents.

UNCERTIFIED CHECKS WILL NOT BE ACCEPTED.

F. F. Bourne,
61 Park Row,
New York, N.Y.

602378

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# FINAL FEE PAID TO THE COMMISSIONER OF PATENTS

(Be careful to give correct Serial No.)

Serial No. 602,378

INVENTOR:

HENRY J. CAISMAN

PATENT TO BE ISSUED TO

HENRY J. CAISMAN

NAME OF INVENTION, AS ALLOWED:

SAFETY RAZORS

DATE OF PAYMENT:

May 28, 1927

FEE:

$20.

DATE OF FILING:

November 21, 1922

DATE OF CIRCULAR OF ALLOWANCE:

December 8, 1926

The Commissioner of Patents will please apply the accompanying fee as indicated above.

T. F. Bacon

Attorney.

SEND PATENT TO

T. F. BOURKE

41 Park Row

New York City

Final fees will not be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

11—8078

602378 18

# District Court of the United States

*District of* CONNECTICUT

HONORABLE COMMISSIONER OF PATENTS,
Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922 (42 Stat. L. 392), you are advised that there was filed on the 7th day of August, 1931, in this court an action, suit, or proceeding No. 2142 Equity, entitled:

Name GILLETTE SAFETY RAZOR COMPANY, Plaintiff,

Address Boston, Massachusetts

*versus*

Name HAWLEY HARDWARE COMPANY, Defendant,

Address Bridgeport, Connecticut

brought upon the following patents:

| | PATENT NO. | DATE OF PATENT | PATENTEE |
|---|---|---|---|
| 1 | 1,633,739 | June 28, 1927 | Henry J. Gaisman |
| 2 | Reissue 17,567 | Jan. 14, 1930 | Auto-Strop Safety Razor Co. (Henry J. Gaisman) |
| 3 | | | |
| 4 | 1,815,745 | July 21, 1931 | Gillette Safety Razor Co. (Ralph E. Thompson) |
| 5 | | | |

In the above-entitled case, on the ..... day of ....., 192 , the following patents have been included by ..... (insert amendment, answer, cross bill, or other pleading):

| | PATENT NO. | DATE OF PATENT | PATENTEE |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

In the above-entitled case the following decision has been rendered or decree issued:

In witness whereof I have affixed my hand this 7th day of August, 1931, at New Haven, Connecticut

E. C. Tuttle

*Clerk of said Court.*

# District Court of the United States

DISTRICT OF N. J.

HONORABLE COMMISSIONER OF PATENTS,
Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922 (42 Stat. L. 392), you are advised that there was filed on the 25th day of August, 1931, in this court an action, suit, or proceeding No. E 61-310, entitled:

Name Gillette Safety Razor Company, Plaintiff,

Address Delaware,

versus

Name David Jacoby and Morris Bettagen, trading as, Defendant,

Address doing business under the name and style of Mills Razor Blade Co. New York

brought upon the following patents:

| PATENT NO. | DATE OF PATENT | PATENTEE |
|---|---|---|
| 1 1,623,349 | June 29-1927 | Henry J. Jorman |
| 2 17,567 | Jan. 14-1930 | Autostrop Safety Razor Co. |
| 3 1,815,745 | July 21-1931 | - plaintiff |
| 4 | | |
| 5 | | |

In the above-entitled case, on the ..... day of ....., 19..., the following patents have been included by ..... (insert amendment, answer, cross bill, or other pleading):

| PATENT NO. | DATE OF PATENT | PATENTEE |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |

In the above-entitled case the following decision has been rendered or decree issued:

.....

.....

IN WITNESS WHEREOF I have affixed my hand this 25th day of August, 1931, at N. Y.

Charles Nevius
Clerk of said Court.

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Form 7a

# District Court of the United States

EASTERN DISTRICT OF MICHIGAN, SOUTHERN DIVISION

HONORABLE COMMISSIONER OF PATENTS,
Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922 (42 Stat. L. 392), you are advised that there was filed on the 19th day of December, 1931, in this court an action, suit, or proceeding No. 5145, entitled:

Name Gillette Safety Razor Company, Plaintiff,

Address Boston, Massachusetts

*versus*

Name Chum Razor Blade Corp., Defendant,

Address 1124 Lafayette Building, Detroit, Michigan.

brought upon the following patents:

| PATENT NO. | DATE OF PATENT | PATENTEE |
|---|---|---|
| 1 1,635,759 | June 28, 1927 | Henry J. Gaisman - Assigned to Plaintiff |
| 2 Reissue 17,569 | January 14, 1930 | AutoStrop Safety Razor Company, Ltd. as assignee of Henry J. Gaisman, assigned to Plaintiff, |
| 3 | | |
| 4 | | |
| 5 1,815,745 | July 21, 1931 | Assigned to Plaintiff, Gillette Safety Razor Co. |

In the above-entitled case, on the ..... day of ....., 193 , the following patents have been included by ..... (insert amendment, answer, cross bill, or other pleading):

| PATENT NO. | DATE OF PATENT | PATENTEE |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |

In the above-entitled case the following decision has been rendered or decree issued:

IN WITNESS WHEREOF I have affixed my hand this 19th day of December, 1931, at Detroit, Michigan.

Clerk of said Court.

60 3378

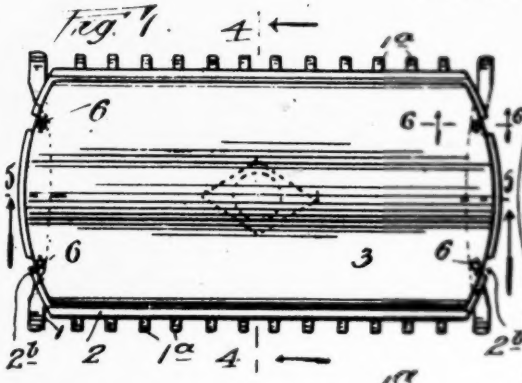
June 28, 1927. 1,633,739

H. J. GAISMAN

SAFETY RAZOR

Filed Nov. 21, 1922

Fig. 1



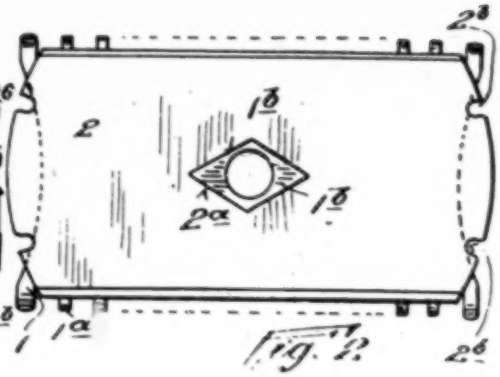




Fig. 2

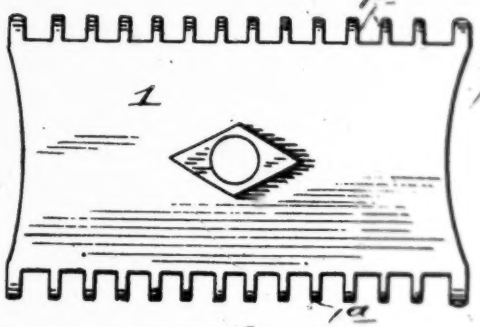



Fig. 3

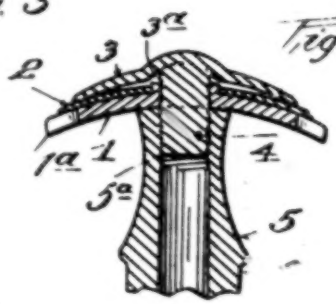



Fig. 4

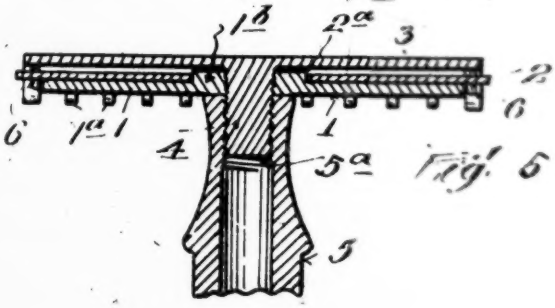



Fig. 5

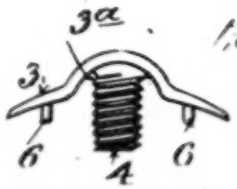



Fig. 9

Fig. 8

Fig. 7

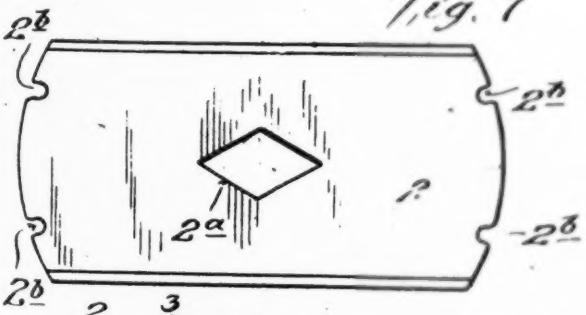



Fig. 6

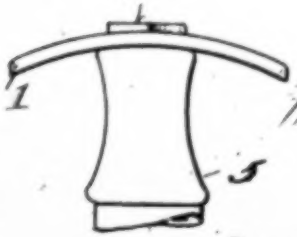



Fig. 10.

Inventor
Henry J. Gaisman

By his Attorney
T. F. Bourne

Patented June 28, 1927. 1,633,739

# UNITED STATES PATENT OFFICE.

HENRY J. GAISMAN, OF NEW YORK, N. Y.

## SAFETY RAZOR.

Application filed November 21, 1923. Serial No. 676,378.

My invention relates to safety razors and is particularly applicable to the class of safety razors comprising a guard, a backing and a thin flexible blade clamped between the guard and the backing to retain the cutting edge of the blade in shaving relation to the guard teeth. In the class of razors described it has been customary, so far as I am aware, to provide the backing member with pins that project through holes in the blade and into holes in the guard member, whereby the blade and the backing are retained from rotation on the guard by the cooperation of said pins with the guard and the clamping of the blade between the guard member and the backing member, so that the blade performs no function in retaining any of said parts with relation one to another.

The object of my invention is to provide a safety razor wherein a blade will cooperate with a guard member to retain the blade in shaving relation thereto and the blade will also cooperate with a backing member to retain the latter in proper relation to the blade for shaving purposes, so that the position of the backing member with regard to the guard member is maintained by the blade and not by the cooperation of said members together in the well known manner I have described above.

In carrying out my invention I provide a guard member and a blade having cooperative means to retain the blade in shaving position on the guard, a backing member for the blade, means cooperative between the blade and the backing member whereby the blade retains the backing member in operative relation to the blade and the guard, and means to cause the guard member and backing member to clamp the blade therebetween.

My invention also comprises novel details of improvement that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part hereof, wherein,

Fig. 1 is a plan view of a safety razor embodying my invention;

Fig. 2 is a similar view, the backing member being removed;

Fig. 3 is a plan view of the guard member;

Fig. 4 is a cross section on line 4. 4 in Fig. 1;

Fig. 5 is a longitudinal section on line 5, 5 in Fig. 1;

Fig. 6 is a detail section on line 6, 6 in Fig. 1;

Fig. 7 is a plan view of the blade;

Fig. 8 is an edge view of the blade;

Fig. 9 is a detail end view of the backing member, and

Fig. 10 is a detail end view illustrating the guard member.

Similar numerals of reference indicate corresponding parts in the several views.

The guard member is indicated at 1, the blade is indicated at 2, and at 3 is a backing member, so organized that the blade may be clamped between said members. The guard member is shown of the variety having guard teeth $1^a$ on opposite sides along which the cutting edges of the blade may extend in an ordinary way for shaving. Any suitable means may be provided for causing the blade to be clamped between the guard member and the backing member. In the example illustrated the backing member 3 is provided with a threaded projection 4 adapted to pass through a centrally disposed hole in the guard member to receive the internal portion $5^a$ of a suitable handle 5 to clamp the parts together for shaving. The blade is provided with a substantially centrally disposed opening $2^a$ through which the projection 4 of the backing member may pass when the blade is between the members 1 and 3. Heretofore, so far as I am aware, the opening in the blade for the projection from the backing for clamping the parts together has been circular so that reliance was had upon spaced pins projecting from the backing to pass through spaced holes in the blade and into holes in the guard member to keep the blade and backing in position on the guard member. In accordance with my invention I provide cooperative means between the blade and the guard member to keep the blade from rotating on said member. For such purpose I provide a projection $1^b$ on the blade side of the guard member adapted to enter an opening $2^a$ in the blade. By preference I make the opening $2^a$ in the blade of non-circular shape, preferably having straight sides, the opening $2^a$ in the drawing being shown in so-called diamond shape, and the projection is of non-circular shape, as shown in so-called diamond shape, (Fig. 3), adapted

snugly to receive the metal at the sides of opening $2^a$ so that the blade will, by said projection, be retained upon guard member 1 with its cutting edges in shaving relation to the guard teeth when the parts are assembled. Means are provided between the blade and the backing member to cause the blade to retain the backing in operative relation to the blade and the guard, for which purpose I have shown the blade provided with recesses or openings $2^b$, preferably at its ends, adapted to receive projections or pins 6 extending from the backing member toward the blade, but not to cooperate with the guard member to retain the backing. The backing member is provided with means to receive the projection $1^b$ of the guard member, for which purpose I have shown the backing member provided with an outwardly disposed depressed or recessed portion $3^a$ which will receive the projection $1^b$ while the side portions of the backing member bear upon the blade for clamping it against the guard member.

When the parts are to be assembled for use the blade may be placed upon the guard member so that the projection $1^b$ of the latter will enter the opening $2^a$ of the blade and thereby the blade is positioned in proper relation to the guard, and the backing member 3 will be applied upon the blade so that its projection 4 will pass through the blade and the guard member and the projections 6 will enter the openings or recesses $2^b$ of the blade, whereby the backing, by means of the blade, is properly positioned upon the blade with respect to its cutting edges and with respect to the guard teeth, whereupon the handle 5 will be screwed upon the projection 4, the handle engaging the guard member, to clamp the parts firmly together for shaving, (Fig. 5). The projections or pins 6 do not cooperate with the guard member to retain the backing member 3 with respect to the guard member, the guard member being shown shorter, where the projections 6 extend through the blade, than the distance between said projections in the direction of the length of the guard member, so that the latter does not interfere with the projections 6. The guard member 1 and backing member 3 are shown curved in a transverse direction whereby a thin blade 2 may be clamped therebetween in a curved shape to stiffen the blade in a well known manner, although the guard member and backing member may have other shape if desired.

In accordance with my invention the blade is retained upon the guard member in the proper position by means of the cooperation of the projection $1^b$ and the sides of opening $2^a$ of the blade irrespective of the backing, so that when the blade is placed upon the guard member said parts will be in proper position to receive the projection 4 of the backing without the inconvenience sometimes experienced of having to manipulate the blade to register its holes with spaced holes of the guard, as heretofore known, and when the backing is applied upon the blade it will immediately be positioned and retained by reason of the projections 5 entering the openings or recesses $2^b$ in the blade, so that the parts are conveniently retained to receive the handle for clamping the parts together, the blade performing a new function in retaining the backing member with relation to the blade and to the teeth of the guard member.

Having now described my invention what I claim is:

1. A blade having a non-circular opening substantially centrally disposed to retain the blade in shaving relation to a guard member, said blade having means spaced from said opening to cooperate with a clamping member to retain the latter in shaving relation to the blade independent of the guard member.

2. A blade having an angularly shaped opening disposed substantially centrally in the blade to cooperate with a guard member to retain the blade in shaving position thereon, and said blade being provided with means spaced from said opening to cooperate with a backing member to retain the latter in shaving relation to the blade and to the guard member.

3. A safety razor comprising blade clamping members, a blade, means cooperative between one of said members and said blade to retain the latter in shaving relation to said member, said blade and the other member having cooperative means whereby the blade will retain said member in an operative position respecting the blade, and means to detachably clamp the blade between said members.

4. A safety razor comprising blade clamping members, a blade adapted to fit between said members, and means to clamp said members upon said blade, one of said members having means cooperative with the blade to retain the blade in operative relation to said member and the other member having means cooperative with the blade independent of the first named means whereby the blade will retain said member in operative relation to the blade independent of the first named means.

5. A safety razor comprising a guard member having a projection on one side, a blade to fit upon said side of said member, said blade having an opening to receive said projection, said projection and the opening of the blade being cooperative to retain the blade from rotation on said member, a backing member for the blade, and means to clamp said blade between said members, said blade and backing member having coopera-

tive means independent of the guard member whereby the blade will retain the backing member in shaving relation to the blade.

6. A safety razor comprising a guard member provided with an opening and having projecting means on one side adjacent to said opening, a blade having an opening to receive said projecting means, said blade opening and projecting means being cooperative to retain the blade in shaving position upon the guard member, a backing member having a projection to extend through said openings in the blade and the guard member, and a handle cooperative with said projection to retain said members clamped upon the blade, said backing having projections and the blade having openings to receive said projections independent of the guard member whereby the blade will retain the backing member in shaving relation to the blade.

7. A safety razor comprising a guard member provided with a non-circular projection on one side, a blade having a non-circular opening to receive said projection and having other openings spaced from the first named opening, a backing member having projections to receive said other openings for retaining the backing member in shaving relation to the blade, and means for detachably clamping said members upon the blade.

8. A safety razor comprising a guard member provided with a projection on one side, a blade having an opening to receive said projection, said projection and opening having a cooperative contour to retain the blade in shaving position on the guard member, said blade having openings spaced from the first named opening, a backing member having a depressed portion to receive said projection of the guard member, said backing having projections to cooperate with the second named openings of the blade independently of the guard member whereby the blade will retain the backing in shaving relation to the blade and the guard member, and means for detachably clamping said members on the blade.

HENRY J. GAISMAN.

# 1922

## CONTENTS:

1. Application papers.
2. Rejection June 19, 1923
3. Amendt A June 21, 1924
4. Rejection Sept. 27, 1924.
5. Amendt B. Sept 15, 1925
6. Rejection Dec 4, 1925.
7. Amendt C. Dec 1, 1926
8. Notice of Suit Aug. 8-1931
9. Notice of Suit Aug 21-1931
10. Notice of Suit Dec 26-1931
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## DEFENDANT'S EXHIBIT NO. 4.

UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY

| | |
|---|---|
| GILLETTE SAFETY RAZOR COMPANY *Plaintiff,* —*against*— ESSEX RAZOR BLADE CORPORATION *Defendant* | IN EQUITY NO. 4813 ON UNITED STATES LETTERS PATENT 1,633,739 |

### STIPULATION AS TO PATENTS

It is stipulated and agreed by and between counsel for the parties to the above entitled cause that regular officially printed uncertified copies of specifications and drawings of Letters Patent of the United States and foreign countries, or photostatic copies thereof, may be used in evidence in behalf of the respective parties in this suit with the same force and effect as the originals or duly certified copies thereof, subject to correction by the originals or duly certified copies thereof at any time upon request by either counsel upon due notice; and the dates of application, filing and of patenting and the names of the patentees, printed upon such printed uncertified copies of the Letters Patent as are so offered in evidence herein shall be considered to be prima facie evidence respectively of the true dates of the applications for such patents being filed and of such patents being granted and published and of the granting and issue of such patents to the patentee or patentees named therein, subject, however, to correction by the originals or duly certified copies at any time upon request by either counsel and upon due notice, and subject to correction

by proof offered by the adverse party as to the true filing dates or names of patentees.

HENRY R. ASHTON
Solicitors for the Plaintiff
SAUL LEHR
Solicitor for the Defendant

C. M. PALMER
Of Counsel for Defendant
NEW YORK, NEW YORK
April 4th, 1934

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**DEFENDANT'S EXHIBIT NO. 5.**

**Defendant's Model of Razor and Blade of Prior Hartman Patent No. 1,247,266.**

(Physical Exhibit.)

## ORDER.

(Filed June 10, 1935.)

It is, upon motion of the plaintiff herein, ORDERED:

That the record on appeal herein shall contain the parts of the record in this case identified in the præcipe annexed to the plaintiff's motion.

WILLIAM CLARK,
*United States District Judge.*

June 10, 1935.

## NOTICE.

Sir:

Please take notice that the plaintiff will present the annexed motion to the United States District Court in the Lefcourt Building at Newark, New Jersey, on Monday, June 3, 1935, at 10:30 A. M.

HENRY R. ASHTON,
*Counsel for Plaintiff.*

May 24, 1935.

To: C. M. PALMER, ESQ.,
*Counsel for Defendant,*
1562 Ocean Avenue,
Brooklyn, New York.

## MOTION.

Now comes the plaintiff herein and moves this Court for an order providing that the record on appeal herein shall contain the parts of the record in this case identified in the annexed præcipe.

HENRY R. ASHTON,
*Counsel for Plaintiff.*

May 24, 1935.

## PLAINTIFF'S PRÆCIPE FOR RECORD ON APPEAL.

Plaintiff hereby specifies the following items to be included in the record on appeal herein:

1. Docket entries.

2. Bill of complaint.

3. Answer.

4. Amendment to answer.

5. Order dated November 8, 1934, on findings of fact and conclusions of law.

6. Final decree, dated November 8, 1934.

7. Petition and order allowing appeal, dated February 6, 1935.

8. Assignments of error, dated February 6, 1935.

9. Citation.

10. Order extending return day of the citation, etc., dated March 5, 1935.

11. Order extending the return day of the citation, etc., dated April 8, 1935.

12. Statement of the evidence, including testimony and exhibits, the exhibits to be dealt with as follows:

(a) Exhibits to be reproduced or duplicated:

*Plaintiff's exhibits:*

P-2—Gaisman patent in suit No. 1,633,739.
P-3—Stipulation dated October 23, 1934.
P-8—Comparison drawing of old style Gillette razor and razor of Gaisman patent in suit.
P-10—Comparison drawing of guards, blades and caps of the Gaisman patent in suit and the Gillette Good Will Razor.

*Defendant's exhibits:*

D-2—Prior patents as follows:

| | | |
|---|---|---|
| 775,134 | Gillette | Nov. 15, 1904 |
| 933,020. | Clark | Aug. 31, 1909 |
| 952,837 | Nahemow | Mar. 22, 1910 |
| 1,000,235 | Carreras | Aug. 8, 1911 |
| 1,011,938 | Gaisman | Dec. 19, 1911 |
| 1,116,448 | Lawson | Nov. 10, 1914 |
| 1,124,668 | Shure | Jan. 12, 1915 |
| 1,169,665 | Marx | Jan. 25, 1916 |
| 1,246,219 | Ballreich | Nov. 13, 1917 |
| 1,247,266 | Hartman | Nov. 20, 1917 |
| 1,308,730 | Benn | July 1, 1919 |
| 1,389,962 | Merz | Sept. 6, 1921 |

D-3—File wrapper of Gaisman patent in suit No. 1,633,739.

D-4—Stipulation dated April 4, 1934.

(b) Exhibits to be identified in the printed record but transmitted to the Court of Appeals as physical exhibits.

*Plaintiff's exhibits:*

P-1—Present Gillette Blue Blade.
P-4—Carton of defendant's Royal Knight Blades.
P-5—Carton of defendant's New Deal Blades.
P-6—Triple size model of original Gillette razor.
P-7—Triple size model of razor of Gaisman patent in suit.
P-9—Gillette Good Will Razor.
P-9a—Gillette Good Will Razor.
P-11—Plaintiff's model of razor of prior Hartman Patent No. 1,247,266.
P-12—Blade for Exhibit P-11.

*Defendant's exhibits:*

D-1—Defendant's New Deal Blade.

D-5—Defendant's model of razor and blade of prior Hartman Patent No. 1,247,266.

13. Opinion (to be written).

14. Order approving the statement of evidence as true, complete and properly prepared.

15. This præcipe.

16. Stipulation as to correctness of record.

17. Clerk's certificate.

HENRY R. ASHTON,
*Counsel for Plaintiff.*

May 24, 1935.

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Approved:

C. M. PALMER,
*Counsel for Defendant.*
June 10, 1935.

## ORDER.

(Filed July 6, 1935.)

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This cause came on to be heard at this term, upon motion of Henry R. Ashton, Esquire, counsel for plaintiff-appellant, and upon consideration thereof, it is hereby ORDERED:

That the return day of the citation herein, the time for filing and approving the præcipe, the time for lodging and approving the narrative statement of the evidence, and the time for filing the transcript of record and docketing the appeal herein in the United States Circuit Court of Appeals is hereby extended to and including the fifteenth day of September, 1935, and the term of this court is correspondingly extended for the consideration of any matter which may arise herein.

FORMAN,
*United States District Judge.*

Dated: July 6, 1935.

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Consented to:

C. M. PALMER,
*Counsel for Defendant-Appellee.*

[fol. 230] IN THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE THIRD CIRCUIT, OCTOBER TERM, 1935

No. 5760

GILLETTE SAFETY RAZOR COMPANY, Plaintiff-Appellant,

vs.

ESSEX RAZOR BLADE CORPORATION, Defendant-Appellee

And afterwards, to wit, the 10th day of December, 1935, come the parties aforesaid by their counsel aforesaid, and this case being called for argument sur pleadings and briefs, before the Honorable Joseph Buffington, Honorable J. Warren Davis and Honorable J. Whitaker Thompson, Circuit Judges, and the Court not being fully advised in the premises, takes further time for the consideration thereof,

And afterwards, to wit, on the 5th day of March, 1936, come the parties aforesaid by their counsel aforesaid, and the Court, now being fully advised in the premises, renders the following decision:

[fol. 231] IN THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE THIRD CIRCUIT, OCTOBER TERM, 1935

No. 5760

GILLETTE SAFETY RAZOR COMPANY, Plaintiff-Appellant,

v.

ESSEX RAZOR BLADE CORPORATION, Defendant-Appellee

Appeal from the District Court of the United States for the District of New Jersey

OPINION—Filed March 5, 1936

Before Buffington, Davis and Thompson, Circuit Judges.

BUFFINGTON, J.:

This case concerns the art of Gillette safety razors. We are so familiar with the use for years of such razors that

it is hard for us to conceive there could now be any marked improvement therein. The original Gillette patent was before this court in 194 Fed. 421. In a later case, 62 Fed. (2d) 416, this court noted "that the safety razor art is a thoroughly occupied field. Originally novel and radical in character and for years the subject of patentable novelty and [fol. 232] the source of large profits, the field has been thoroughly developed and, as a result thereof and the employment of skilled engineering in its progress, improvement and development are naturally to be looked for." Adhering to those views, we approach the questions involved in the present case and inquire first whether the patentee, Gaisman, disclosed anything useful and a material improvement in the razor art, and secondly, if so, was it merely the engineering progress incident to, and to be expected in, that art, or was it such a departure along new lines as to amount to invention. As the opinion of the trial Judge was not printed in the record, we now print it in the margin and make it part of the record.*

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* Opinion, United States District Court, District of New Jersey

CLARK, D. J.: This Court approaches the writing of this opinion without any particular enthusiasm. This for several reasons. In the first place, we rather thought we had already discharged our duty in the premises "many long months ago". The original hearing took place on October 25, 1934. Final argument followed on October 29th and at the conclusion thereof we gave verbal utterance to our views (Record pages 96-97). At those times we were attended by one member of the well-known firm who represents the plaintiff company. Thereafter and on April 24, 1935 there was further argument with respect to the form of the models which should be submitted on the inevitable appeal. At that time we were attended by a different member of the same distinguished firm. In the course of the discussion this different member gave us the impression that he had a poor opinion of our competence patent wise, so to speak. This was the more humiliating because the improvement, if any, as will later appear, was of the most child-like simplicity.

In the second place, we observe with distaste the economic situation disclosed by the record. The defendant company

[fol. 233] In 194 Fed. 421 two propositions were by this Court determined: First, that "a ribbon or wafer razor-blade, so thin as to require external support of its cutting edge, was original with Gillette"; and second, his claim for such a blade was not invalid, because the blade was not per se operative, but, citing authorities, we held: "As to our fifth conclusion we note it should be added that claim 2 is not invalid because not for an operative device, for, if such were the law, patentability must have been denied to Elias Howe for 'the grooved and eye-pointed needle' which constituted his seventh claim".

[fol. 234] Based on this holding, the Gillette Company enjoyed, until their patent expired, a monopoly of their so called safety razor. We say "so called safety razor" for in point of fact it was not a safety razor, as the experience of users of this original Gillette razor has been that they have cut themselves on it quite frequently and now continue to do so. Indeed the statement of the trial Judge, "I generally cut myself", is the experience of all of us safety razor users. During the eighteen years that have

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was organized by former employees of the plaintiff. Previously to their organization of the defendant company they had been employed by another razor blade manufacturing company, the Clark, which seems to have warred with the Gillette Company since the inception of the art (Gillette Safety Razor Co. v. Clark Blade & Razor Co., et al., 187 Fed., 149 and Clark Blade & Razor Co. v. Gillette Safety Razor Co., 194 Fed., 421). The scene of the latest skirmish in this warfare was in our court room and subsequent to our dismissing this bill. The plaintiff in this suit was defendant in a Sherman Act triple damage action brought by the Clark Company. We were constrained to nonsuit because we felt that the Clark Company had not proved its damage. We say constrained not politely but advisedly. The practices of the present plaintiff as there revealed seemed to us to contravene not only the Sherman Act but broader principles of fair competition. The practice cognate to the present litigation was the plaintiff's use of patents in the razor blade art. (Gillette Safety Razor Co. v. Hawley Hardware Co., 60 Fed. (2d) 1019 and Gillette Safety Razor Co. v. Hawley Hardware Co. 64 Fed. (2d) 10). That use was fully exploited in the record of the suit

passed between the year 1904, when the Gillette patent was granted, and 1922, when the problem of a non-face cutting razor was solved, no one solved, or indeed recognized, that [fol. 235] problem, although this record is replete with patents many in number, evidencing attempts to improve the safety razor.

Indeed the only attempt in the line of safety is the patent of Fretwell, No. 1,467,930, considered by this Court in 78 Fed. (2d) 868, the object of which was to provide a blade of such character "that in the event of an insane person seeking to pick at the blade with a view to removing the same, the blade will be broken into fragments and rendered unfit for use". But this patent, as also that of Hartman, [fol. 236] left no impress on the art and were but abortive conceptions with no factory birth or sales maturity.

Curiously enough, the solution of safety came not from the efforts of the Gillette engineering staff in an attempt to extend the monopoly of its expiring patent, but from a competing company. The latter's president, Gaisman, was an

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above referred to and need not, therefore, be repeated here. This method of unfair competition was the subject of extensive testimony at the time of the Oldfield Hearings on the revision of the patent law. We quote two witnesses:

"As to wealthy corporations, it has become obvious that the skillful handling of patent cases places them at an untold advantage against their smaller competitors. For them, a well-organized patent department is a reliable machine, where money is the lubricant. This machine, in its slow but sure grinding way, can reduce to pulp any of the smaller competitors. For large corporations the maintenance of such a machine with a staff of lawyers and experts, is merely a small side expense. By its aid they can bluff their weaker competitors into quick submission. If this is not successful, they can drag out a patent suit indefinitely, until the weak opponent unable to bear the ever-increasing expenses, collapses and withdraws.

"These tactics are well-known, and have been played successfully, whether it was to uphold the worthless patent or to obtain immunity in case of infringement. In every case the wealthy corporation is sure of the outcome of the game, and plays, 'Heads I win, tails you lose'."

(Oldfield Hearings of 1912, No. 4, p. 34)

experienced razor man. His first effort to improve safety razor blades was his patent No. 1,011,938, which had aimed to reduce the breaking of blades when bent, by tempering the outer or cutting edge of the blade to the desired degree and annealing or tempering to a lower degree the cen- [fol. 237] tral longitudinal portion. The object of such treatment was "to permit the blade to bend or to curve between the longitudinal edges without danger of breaking or cracking." While this patent is not here involved, it is of interest as showing Gaisman's first effort to improve was along the line of preventing blade breaking and not preventing blade cutting of the face. It is also of interest as showing for the first time in the art the pictorial idea of a square opening in a blade but to which no function was attributed.

[fol. 238] On November 21, 1922, when Gillett's patent for the flexible blade had expired, Gaisman applied for, and was granted, patent No. 1,633,739, here in suit. From his specification we see his object was to improve the thin, ribbon-like strip of the Gillette razor which he was now free to use. This is shown by the first nineteen lines of the

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"There is no present requirement that a suit under a patent be brought in good faith. It not infrequently happens that the owner of a patent brings suit against a perfectly innocent defendant, puts him to expense, worry, and general harassment in his own defense, and injures his business; and it is finally found by the court, when the case is concluded, that the defendant has not infringed any valid claim of the patent sued upon. Under the present system, as far as I know, the defendant can recover nothing but his court costs, which represent a very small portion of the expense to which he has been put in his defense."

(Oldfield Hearings of 1912, No. 15, p. 6)

Such a spirit and its practical application are bound to react upon the consciences of those whose economic status compels them to participate therein. Accordingly it is not surprising to find the Gillette Company's former employees working for and even organizing companies whose sole purpose is alleged to be the infringement of the plaintiff company's patent monopoly.

In the third place, we are again forced to despair of the Patent Office. That despair has become so chronic with us

specification. He there points to the fact that in that type of razor "the blade and the backing are retained from rotation on the guard by the cooperation of said pins with the guard and the clamping of the blade between the guard member and the backing member, *so that the blade performs no function in retaining any of said parts with relation one to another.*"

We here note, as above stated, that in this Gillette type of razor Gaisman sought to improve, the blade was a passive, non-controlling and non-operating element in fixing, determining or maintaining the relation of the backing member and the guard member and that his invention was in now making the blade the dominating and exclusive factor which positioned, maintained and kept in proper cutting position, first, the backing member; second, the guard member; and third, the proper cutting edge of the blade itself. This he set forth in his specification in simple clearness, viz:

"The object of my invention is to provide a safety razor wherein a blade will cooperate with a guard member to

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that it would seem to call for a major operation either upon us or upon the Office. The cause of our tears this time is not new. It is simply the examiner's failure to find the anticipating patent, or rather we should say the patent both sides agree is most relevant, Hartman No. 1,247,266, November 20, 1917. Perhaps again the explanation is the same as that received in the case of a patent for manufacturing rope, namely, that the missing patent had through capillary action, no doubt, adhered to another and had, therefore, been overlooked.

To return to our in the first place. We are quite ready to concede the paucity of our scientific equipment. In many arts we have been faced and will no doubt again be faced with abstruse and intricate problems requiring a high degree of scientific understanding. We can only hope that our industry has made up and will make up for our lacking of training and intelligence. Counsel's estimate of both these last is evident from a statement of the patent and the asserted anticipation.

Like many devices, the safety razor makes use of a description that does not describe. We want to be clean and

retain the blade in shaving relation thereto and the blade will also cooperate with a backing member to retain the latter in proper relation to the blade for shaving purposes, so that the position of the backing member with regard to the guard member is maintained by the blade and not by the cooperation of said members together in the well known manner I have described above."

[fol. 239] That no one had done this, or even conceived this, before, is clear, but its significance and effectiveness in making the Gillette Razor a non-face-cutting and an actual safety razor is not apparent at first sight.

Addressing ourselves to a study thereof, we note the basic fact that the cutting edge of the blade must be accurately placed initially with reference to the guard, than when so placed or positioned, the guard will keep the cutting edge from being so far forward as to cut the face and yet from being so far back that it will not cut the beard. Now this position zone between face cutting and non-shaving has been accurately determined and is proven without

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want to be safe so we buy safety razors and prophylactive tooth brushes. As a matter of fact, the guard may make the razor useless for "social purposes", but furnishes no more protection than the least skillful user of the old style instinctively gives himself. In other words, the cuts of the so-called safety razor cannot be fatal. Neither do we remember hearing of any deaths while shaving with an old-fashioned razor.

We do not mean by this to deny the present day safety razor. That merit happens to have, however, no relation to its name. It is what gave Mr. King C. Gillette both his patent and his fortune (one of the rare instances of such concurrence). The maintenance of a cutting edge on a razor is both essential and with any thickness of steel troublesome and expensive (stropping and honing). The Gillette touch of genius was the use of blades "made of sheet steel having preferably a uniform thickness of almost six one thousandths of an inch". Incidentally, counsel in the present case seemed to credit this touch of genius to one France, an employee of Gillette, rather than to King C. Gillette himself.

The new blade was fitted into the more or less old mechanism. The principal feature of this old mechanism was

any contradiction by the production engineer of the plaintiff as follows:

"Q. To what extent is a safety razor a precision instrument, Mr. Smith?

A. It is a precision instrument because it must be made so that there is the least *possible variation* in blade exposure.

Q. What are the limits that you found possible commercially or desirable commercially?

A. Blade exposure must not be less than zero nor preferably more than 8-1/1000 of an inch."

It therefore follows that the usable, permissible, workable position zone within which the blade will cut the beard and not cut the flesh, is the almost microscopic zone of eight one thousandths of an inch in breadth. Outside of that zone the blade will either flesh-cut or non-hair-cut—and the zone is so narrow that it cannot be located by sight or determined by touch. Indeed, as the diameter of a hair is one-two hundred and fiftieths of an inch, which is equiv-

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an overlapping clamp which cut down the field of the cutting edge and thereby afforded the necessary protection. To hold the two parts of the clamp (now apparently designated the cap and the guard) together a screw projected from the cap through the blade and guard and was screwed into the handle of the razor. If only a screw in the centre were used, the blade would fit loosely at the ends. To provide against this the original Gillette had two additional conical protuberances made part of the cap and fitted into holes in the blade and the guard. These, in the jargon of both Patent Office and patent counsel, are described as "positioning means" and again in their jargon gave more precision to this instrument of precision and permitted greater manufacturing tolerance. The "improvement" of the Hartman patent was to shift these additional protuberances from the cap to the guard. This distribution of the "interlocking" means we concede might make for greater snugness as it constituted a distribution of stresses. We should have hardly thought it beyond the grasp of the ordinary mechanic.

There was in the art another patent to Thompson which although not cited in the Patent Office or by defendant's

alent to four-one thousandths of an inch, the width of the proper cutting position zone may be aptly described as a "hair breadth". From this it follows that if it is done, [fol. 240] the razor must necessarily automatically do two things, first, locate the cutting edge of the blade initially in this microscopic safety zone, and secondly, must immovably hold it there during the shaving operation. And if the patentee's device so acts as to effect these two things, the device would seem to be of high merit, an important advance, and one worthy of patent protection. If after having gotten the proper cutting edge of the blade, it were to be soldered or fastened in that position, that might solve the problem, but you cannot do that in a razor. It must be capable of being taken apart and put together often and speedily. To do this rapidly and safely, the parts must not be too rigidly or too firmly attached. These facts created another necessary factor for which due allowance must be made and counteracted, that is the element called "tolerance", which created a limited freedom of motion, movement or "slack". This tolerance problem was met by

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counsel is interesting. The use of this patent was included in the unfair competition complained of by another independent razor company, the triple damage suit in this court. The improvement there was the recessing of the four corners of the blade. In an eloquent passage an officer of the defendant company attributed the ratio decidendi, so to speak, for this practice to the "burrs" on the cap occasioned by dropping the razor around the bathroom. We have a feeling that the said officer exaggerated the matutinal condition of the average shaver. However that may be, the recesses prevented the burrs from touching and so spoiling the blade.

This time the courts or rather the court that counts was on the side of the ordinary mechanic. The District Court found for the patent (Gillette Safety Razor Co. v. Standard Safety Razor Corp. 8 Fed. Supp., 251). The Circuit Court of Appeals for the Second Circuit (Gillette Safety Razor Co. v. Standard Safety Razor Corp. 74 Fed. (2d) 691) in reversing said:

"The simplicity of accomplishing this result or, in other words, solving the problem, required no inventive thought.

the patent in suit. To illustrate: The uncontradicted proof in that regard is as follows:

"In an old style Gillette razor the two outer pins on the cap positioned both the blade relative to the cap and the guard relative to the cap. In order that the blade shall fit on the studs and that the guard shall fit on these studs, the holes have to be somewhat larger than the pins. In this arrangement it is possible for the blade to move in one direction, to take up the clearance between the large holes and the small studs, and for the guard to move in the opposite direction. The result is that the amount of blade exposure which is an important characteristic of the safety razor may vary on account of this necessary looseness by about 5-1/1000 of an inch."

Remembering the testimony earlier quoted that the zone of movement of the cutting edge was but eight one thousandths of an inch, we can see that when thus limited eight [fol. 241] one thousandths of an inch of allowable blade exposure was still subject to five one thousandths shift due

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The type of blade was not new. If anything, all that was new was the cutting of the recesses in the corners, that is, cutting the corners of the flexible blade used for the Gillette-type safety razor. As we said in Gillette Safety Razor Co. v. Standard Safety Razor Co., 64 Fed. (2d) 9, 'it was the obvious and inevitable thing to do to cut the blade to fit the bar'. So it was here necessary to cut the blade to accommodate the lugs." (At page 692.)

And see also Gillette Safety Razor Co. v. Standard Safety Razor Corp. 2 Fed. Supp. 53 and Gillette Safety Razor Co. v. Standard Safety Razor Corp. 64 Fed. (2d) 9.

To this we say amen in the case at bar. And we say so the more fervently because the learned presiding judge of this court has already characterized the art (American Safety Razor Corp. v. Frings Bros. Co. 62 Fed. (2d) 416):

"Turning then to the question whether the supply blade of defendant infringes plaintiff's patent rights, we note that the safety razor art is a thoroughly occupied field. Originally novel and radical in character and for years the subject of patentable novelty and the source of large profits,

to the "tolerance" factor, and consequently the proper cutting edge exposure might be thus changed to an over or under exposure position. And the difference between the old type Gillette blade and the Gaisman blade is proven without contradiction, viz: "There is only a 3-1/1000 of an inch, a reduction as compared with the Gillette method of positioning of 2-1/1000, or 40 per cent." The effect of this two one thousandths reduction is established by the uncontradicted proof, which is:

"Q. And do I understand correctly that allowing the same manufacturing tolerance for the two types of struc-

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the field has been thoroughly developed, and as a result thereof and the employment of skilled engineering in its progress, improvement and development are naturally to be looked for. Moreover, courts in dealing with an art, originally pioneer in origin, must carefully scrutinize the constant efforts of those who have enjoyed a profitable patent monopoly to lengthen such monopoly by patents for non-inventive changes." (At p. 417.)

It is true that Gaisman did more than advise four artificial recesses to avoid accidental burns. He recommended artificial burrs to fit into the recesses. He claims greater closeness of fit and greater precision because of these additional positioning means. Let him claim it. We do not think his claim should be crowned by a patent.

In conclusion let us say that we still do not perceive in what regard we misunderstand this invention. Trial counsel agreed that we grasped his contention. The record shows the following colloquy (Record pages 37-38):

"The Court: * * * Then your invention consists in putting four little protuberances on the top of each corner of the top and fitting them into corresponding niches in the blade?"

"Mr. Clark: To the extent that that makes possible this blade positioning to which I have referred."

"The Court: But that's the way it is done?"

"Mr. Clark: That's the way it is done. It is the first time that has been done."

Perhaps appellate counsel will make our ignorance plain both to us and to the court above.

tures you will get more accurate determination of the blade exposure with the Gaisman construction than with the old Gillette construction?

A. Yes, sir, 40 per cent more accurate as far as those features are concerned.

Q. So by the same token you might allow greater manufacturing tolerances with the Gaisman construction and still get as good results as with the old Gillette construction, is that correct?

A. Yes, sir.

Q. Which would be cheaper?

(X)

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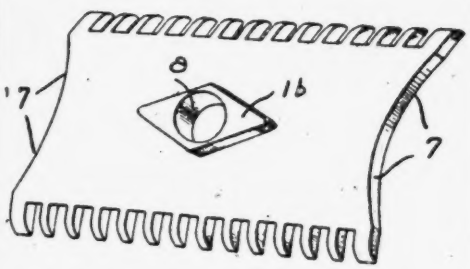
(X) It is to be noted that while Judge Thomas' decision in 60 F. (2d) 1019, was reversed in 64 F. (2d) 10, alone on the ground of non-infringement, his conclusions on patent validity were not questioned. As evidencing his estimate of the Gaisman patent, his accurate and lucid statement is here quoted:

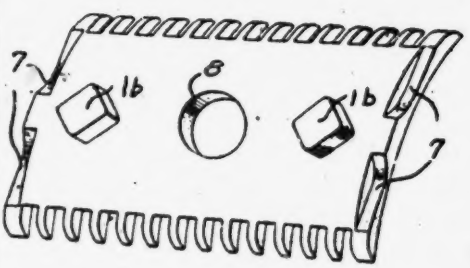
"The principal utility of the Gaisman invention lies in the fact that it permits less accurate standards of manufacture while maintaining equal accuracy of positioning the cutting edges of the blade with relation to the cap and guard member of the razor. The accumulated error which is possible in the Gaisman razor is less than the accumulated error of the 'old style' Gillette razor. It appears from the evidence that the Gaisman principle reduces the variation of the blade cutting edge exposure approximately one-third or, if the same tolerance and clearances are maintained, the Gaisman principle improves the average qualities of the razor by about one-third.

Plaintiff's witness T. L. Smith, the production engineer, testified that the greater the tolerance, the lower the cost, and that the greater the precision required, the greater the cost of manufacture. If the tolerances are reduced one-third, the costs would perhaps be doubled (pages 310, 311), and there is no controversion of this testimony in the record. Therefore the effect of the Gaisman invention is either to permit manufacture with less accurate measurements of a razor which will shave satisfactorily or, if the same accuracy is maintained, to produce a more accurate, and therefore a better, shaving instrument."

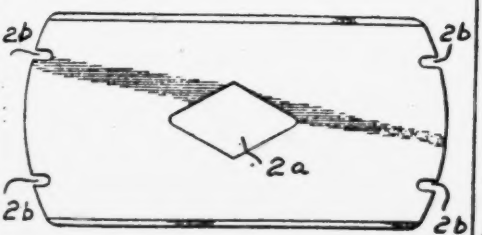
GUARD OF RAZOR OF GAISMAN PATENT



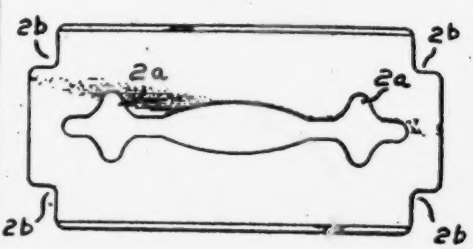

GUARD OF GILLETTE GOODWILL RAZOR



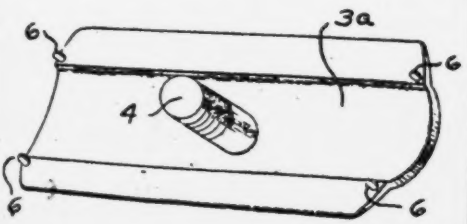

BLADE OF GAISMAN PATENT



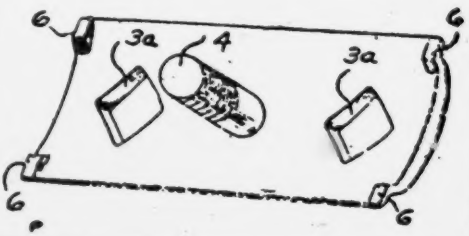

DEFENDANT'S BLADE




CAP OF RAZOR OF GAISMAN PATENT




CAP OF GILLETTE GOODWILL RAZOR



[fol. 242] A. Yes, sir."

The Gaisman device and how it operates and overcomes these difficulties is clearly and tersely set forth in the specification as follows:

"In carrying out my invention I provide a guard member and a blade having cooperative means to retain the blade in shaving position on the guard, a backing member for the blade, means cooperative between the blade and the backing member whereby the blade retains the backing member in operative relation to the blade and the guard, and means to cause the guard member and backing member to clamp the blade therebetween."

The details of its operation, the Goodwill razor in which the plaintiff embodies the Gaisman patent which it has acquired, and the defendant's alleged infringing blade are all set forth in the accompanying illustrative sketch and the plaintiff's brief correctly states in language which we adopt, viz:

(Here follows 1 drawing, side folio 243.)

[fol. 244] "The guard of the Gaisman razor is provided with a diamond shaped (non-circular) projection 1b. The blade is provided with a complementary opening 2a which fits over the projection 1b. This positions the blade, and consequently also its cutting edges accurately with respect to the teeth of the guard. With the blade thus accurately positioned on the guard, the next step is to position the cap accurately with respect to both the blade and guard. This is accomplished by means of the four recesses 2b near each of the four corners of the blade which are entered by four projections 6 on the cap. The screw-threaded spindle 4 on the cap passes through the center of the blade and through the opening 8 in the guard and serves merely to draw the parts together when the razor handle is screwed up. The two ends of the guard are cut away at 7 so that there is no engagement whatsoever of the cap projections 6 with the guard. And, similarly, there is no engagement whatsoever of the guard projection 1b with the cap, the central zone 3a of the cap being recessed to prevent any such engagement.

Thus it clearly appears that the blade is the sole connecting link between the guard and cap of the razor and it serves, because of its engagement in its central area with the projection 1b of the guard and its engagements at its four corners with the projections 6 of the cap, as a key whereby the guard and cap are both accurately positioned with respect to each other and also with respect to the cutting edges of the blade.

Exactly the same is true of defendant's blade as used in the Gillette Goodwill razor. Referring to the righthand column of the Exhibit, it will be seen that the guard is provided with two, instead of one, diamond shaped (non-circular) projections 1b over which fit the complementary openings 2a in defendant's blade. These two projections 1b on the guard and the openings 2a in the blade position, and consequently also its cutting edges, accurately with re-[fol. 245] spect to the teeth of the guard. Similarly the cap is positioned accurately with respect to both the blade and guard by means of the four recesses 2b at each of the four corners of the blade which are entered by the four projections 6 on the cap. Also, as in the Gaisman razor already described, the screw-threaded spindle 4 on the cap passes through the opening 8 in the guard and serves

merely to draw the parts together when the razor handle is screwed up. The guard of the Goodwill razor is likewise cut away at 7 so that there is no engagement whatsoever of the cap projections 6 with the guard. Nor is there any engagement between the projections 1b of the guard and the cap, the cap being cut away at 3a to prevent any such engagement."

Such being the case, it will be seen that Gaisman's disclosure warranted the grant of his claims, viz:

"1. A blade having a non-circular opening substantially centrally disposed to retain the blade in shaving relation to a guard member, said blade having means spaced from said opening to cooperate with a clamping member to retain the latter in shaving relation to the blade independent of the guard member.

2. A blade having an angularly shaped opening disposed substantially centrally in the blade to cooperate with a guard member to retain the blade in shaving position thereon, and said blade being provided with means spaced from said opening to cooperate with a backing member to retain the latter in shaving relation to the blade and to the guard member."

This combination was, as a whole, new in the art. By its blade, through its corner slots, cooperating with the four studs of the cap or backing and by the blade's angular, non-circular opening cooperating with the angular, non-circular projection of the guard on the other member, the hitherto passive, flexible blade of the old Gillette razor be- [fol. 246] came the dominant factor which mechanically determined the initial and safe position of the cutting edge and mechanically held it in that safe and efficient position, rigidly and without variance or shadow of turning. For the first time in the art it produced a safe, non-face cutting Gillete razor and the fact that, as shown by the uncontradicted proofs, millions of such new razors have been made and sold by the plaintiff, demonstrates its worth. That the defendant's blade is substantially a copy of Gaisman's device is clear. The defendant makes no razor of its own, it is usable on plaintiff's Goodwill razor, and the inference of its being made for use on Gillette razors leaves no doubt in our mind that the officers of defendant, who were former

Gillette officers and were familiar with it, manufacture it for such use and that they are contributory infringers. In view of the above, the record is remanded with instructions to enter a decree of validity of the claims and for an injunction and accounting.

Lest it should appear we have overlooked it, we mention the Canadian decision, which we have duly considered before arriving at our conclusion.

A true Copy. Teste.

—— ——, Clerk of the United States Circuit Court of Appeals for the Third Circuit.

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[fol. 247] IN THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE THIRD CIRCUIT, OCTOBER TERM, 1935

No. 5760

GILLETTE SAFETY RAZOR COMPANY, Plaintiff-Appellant,

vs.

ESSEX RAZOR BLADE CORPORATION, Defendant-Appellee

Appeal from the District Court of the United States, for the District of New Jersey

This cause came on to be heard on the transcript of record from the District Court of the United States, for the District of New Jersey, and was argued by counsel.

On consideration whereof, it is now here ordered, adjudged, and decreed by this Court that the decree of the said District Court in this cause be, and the same is hereby reversed, with costs, and the case remanded to the said District Court with directions to enter a decree holding the claims of the patent in suit valid and infringed, and for an injunction and accounting.

Philadelphia, March 5, 1936.

Per Curiam.

Buffington, Circuit Judge.

Endorsements: Order Reversing decree, etc. Received & Filed March 5, 1936. Wm. P. Rowland, Clerk.

[fol. 248] UNITED STATES OF AMERICA,
Eastern District of Pennsylvania,
Third Judicial Circuit, sct.:

I, Wm. P. Rowland, Clerk of the United States Circuit Court of Appeals for the Third Circuit, do hereby certify the foregoing to be a true and faithful copy of the original Transcript of Record and proceedings in this Court in the case of Gillette Safety Razor Co., Appellant, vs. Essex Razor Blade Corp., Appellee, No. 5760, on file, and now remaining among the records of the said Court, in my office.

In testimony whereof, I have hereunto subscribed my name and affixed the seal of the said Court, at Philadelphia, this 13th day of March, in the year of our Lord one thousand nine hundred and thirty-six, and of the Independence of the United States the one hundred and sixtieth.

Wm. P. Rowland, Clerk of the U. S. Circuit Court of Appeals, Third Circuit. (Seal United States Circuit Court of Appeals, Third Circuit.)

[fol. 249] SUPREME COURT OF THE UNITED STATES

ORDER ALLOWING CERTIORARI—Filed May 4, 1936

The petition herein for a writ of certiorari to the United States Circuit Court of Appeals for the Third Circuit is granted. And it is further ordered that the duly certified copy of the transcript of the proceedings below which accompanied the petition shall be treated as though filed in response to such writ.